

Technical Memorandum

Data Validation

National Survey of
New Jersey
Pedricktown, New Jersey

NL Industries
Highstown

June 1988



Technical Memorandum

Data Validation

**National Smelting of
New Jersey Site**

Pedricktown, New Jersey

NL Industries, Inc.

June 1990

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APPENDICES

- A October, 1989 Validated Sample Results**
- B December, 1989 Validated Sample Results**

Attachments

- 1 October, 1989 SOP NO. HW-6 CLP Data Review Forms for Organics
October, 1989 SOP NO. HW-2 CLP Data Review Forms for Inorganics**
- 2 December, 1989 SOP NO. HW-2 CLP Data Review Forms for Inorganics**

SECTION 1 - INTRODUCTION

1.01 Introduction

The following data validation report addresses data quality for samples collected at the National Smelting of New Jersey Site in Pedricktown, New Jersey. Samples were collected in two rounds by O'Brien & Gere Engineers, Inc. of Syracuse, New York. Laboratory analyses were performed by OBG Laboratories, Inc. of Syracuse, New York. Two separate reports were prepared by OBG Laboratories, Inc., dated October and December, 1989.

1.02 General Considerations

Validation is a process of determining the suitability of a measurement system for providing useful analytical data. Although the term is frequently used in discussing methodologies, it applies to all aspects of the system and especially to samples, their measurement, and the actual data output. Accordingly, this report outlines excursions from the applicable quality control requirements developed by O'Brien and Gere Engineers, Inc. and those outlined in the following documents:

US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Organic/Inorganic Analyses, US EPA, February 1988, June 1988, respectively.

Methods for the Chemical Analysis of Water and Wastes, US EPA - 600/4-79-020, Revised 1983.

Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, US EPA - 600/4-82-057, July 1982.

"The Determination of Halogenated Chemicals in Water by Purge and Trap Methods, Method 502.1", US EPA, EMSL, April 1981, revised 1986.

"The Analysis of Aromatic Chemicals in Water by the Purge and Trap Method, Method 503.1", US EPA, EMSL, April 1981, revised 1986.

"Total Organic Halide, Interim Method 450.1", US EPA, Office of Research and Development, EMSL, November 1980.

The following four sections of this document address distinct aspects of the validation process. Within each section, each round of sampling performed at the ~~NL Industries, Inc.~~ National Smelting

of New Jersey Site is discussed separately. Section 2 lists the analytical methodology employed in sample analysis. Section 3 lists the data quality assurance/quality control (QA/QC) protocols used to validate the sample data. Specific QA/QC excursions and biases are discussed in Section 4. Finally, usability with respect to the intended purposes of the data is discussed in Section 5.

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SECTION 2 - ANALYTICAL METHODS

2.01 October, 1989

The first round of samples was collected at the National Smelting of New Jersey Site between August 14 and August 17, 1989. During this round, forty-six aqueous, four leachate and nineteen soil samples were collected and analyzed for the parameters listed below. The samples were collected from sub-surface soil borings, leachate and ground water monitoring wells and analyzed to collect data to be used for site characterization and a risk assessment. The following methods were used in the analysis and are US EPA methods unless otherwise specified.

<u>Analytical Method</u>	<u>EPA Method Number</u>
TCL Volatile Organics	CLP SOW 2/88 (2)
TCL Semi-volatile Organics	CLP SOW 2/88 (2)
TCL PCB/Pesticides	CLP SOW 2/88 (2)
TCL Inorganics	CLP SOW 7/87 (1)
Total Organic Halide (TOX)	450.1 (3)
Sulfate	375.3 (4)
Total Organic Carbon (TOC)	415.1 (4)
Volatile Halogenated Organics (VHO)	502.1 (5)
Volatile Aromatic Organics (VAO)	503.1 (6)

- 1) US EPA Contract Laboratory Program Statement of Work for Organic Analysis, US EPA, February 1988.
- 2) US EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, US EPA, July 1987.
- 3) "Total Organic Halide, Interim Method 450.1", US EPA, Office of Research and Development, EMSL, November 1980.
- 4) Methods for Chemical Analysis of Water and Wastes, US EPA - 600/4-79-020, Revised 1983.
- 5) "The Determination of Halogenated Chemicals in Water by Purge and Trap Methods, Method 502.1", US EPA, EMSL, April 1981, revised 1986.
- 6) "The Analysis of Aromatic Chemicals in Water by the Purge and Trap Method, Method 503.1", US EPA, EMSL, April 1981, revised 1986.

Sample results for the October, 1989 round of samples collected at the National Smelting of New Jersey Site can be found in Appendix A. The US EPA Standard Operating Procedure (SOP) for

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the Evaluation of Metals Data for the Contract Laboratory Program, No. HW-2 and CLP Organics Data Review and Preliminary Review, SOP No. HW-6 were completed for this data set and can be found in Attachment 1. The following letters can be found immediately to the right of individual sample results found on the sample results summary tables in Appendix A and therefore serve to qualify the data. Letters found in the Q column for organic analyses and the C and Q column for inorganic analyses are qualifiers used in the laboratory's data review. For the purposes of this data validation report those qualifiers located directly to the right of the sample results take precedence. The following qualifiers have been used in this data validation:

U Indicates that the compound was analyzed for, but was not detected. The sample quantitation limit is presented and adjusted for dilution and percent moisture (soil samples).

Handwritten: J
J Indicates that the result should be considered approximate. This qualifier is used when the data validation procedure identifies a deficiency in the data generation process. Additionally, for organic analysis this qualifier is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but, the result is less than the sample quantification limit but greater than zero.

UJ Indicates that the detection limit for the analyte in this sample should be considered approximate. This qualifier is used when the data validation procedure identifies a deficiency in the data generation process.

Handwritten: Rejected
R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any quantitative or qualitative purposes.

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2.02 December, 1989

The second round of samples was collected at the National Smelting of New Jersey Site between October 16 and October 17, 1989. During this round seventy-six soil and thirty-nine aqueous samples were collected from sub-surface soil borings and ground water monitoring wells. The sampling and analysis was performed for the purpose of collecting data to be used for site characterization and a risk assessment. The samples were analyzed by the following US EPA methods.

<u>Analytical Method</u>	<u>EPA Method Number</u>
TCL Inorganics	CLP SOW 7/87 (1)
Purgeable Halocarbons	601 (2)
Purgeable Aromatics	602 (2)
Sulfate	375.3 (3)
Chloride	325.2 (3)

1)	<u>US EPA Contract Laboratory Program Statement of Work for Inorganic Analysis</u> , US EPA, July 1987.
2)	<u>Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater</u> , US EPA - 600/4-82-057, July 1982.
3)	<u>Methods for Chemical Analysis of Water and Wastes</u> , US EPA - 600/4-79-020, Revised 1983.

Sample results for the December, 1989 round of samples collected at the National Smelting of New Jersey Site can be found in Appendix B. The US EPA Standard Operating Procedure (SOP) for the Evaluation of Metals Data for the Contract Laboratory Program, No. HW-2 was completed for this data set and can be found in Attachment 2. Qualifiers used for these samples results are as described in Section 2.01.

SECTION 3 - DATA VALIDATION PROTOCOLS

The following are method specific QA/QC protocols used in the validation of sample data from the National Smelting of New Jersey Site. The protocols are presented by laboratory report date.

3.01 October, 1989

3.01.1 Target Compound List Organics

Target Compound List organic compounds were analyzed for in four leachate samples using US EPA Contract Laboratory Program (CLP) analytical methods and reporting protocols outlined in the US EPA Contract Laboratory Program Statement of Work for Organic Analysis, February 1988. The requirements that were checked for the validation of volatile and semi-volatile organic analyses data are outlined in the US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Organic Analyses, February 1988 and are as follows:

1. Holding Times
2. GC/MS Instrument Tuning Criteria
3. Calibration
 - a. Initial Calibration
 - b. Continuing Calibration Verification
4. Blank Analysis
5. Surrogate Recovery
6. Matrix Spike/Matrix Spike Duplicate Analysis
7. Field Duplicate Analysis
8. Internal Standards Performance
9. TCL Compound Identification

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10. Compound Quantitation and Reported Detection Limits
11. Tentatively Identified Compounds
12. System Performance
13. Overall Assessment of Data for the Case

The requirements to be checked for the validation of PCB/pesticides sample analyses data are outlined in the US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Organic Analyses, February 1988 and are as follows:

1. Holding Times
2. Pesticides Instrument Performance
 - a. DDT Retention Time
 - b. Standards Retention Time Windows
 - c. DDT and Endrin Degradation
 - d. DBC Retention Time Check
3. Calibration
 - a. Initial Calibration
 - b. Analytical Sequence Verification
 - c. Continuing Calibration Verification
4. Blank Analysis
5. Surrogate Recovery
6. Matrix Spike/Matrix Spike Duplicate Analysis
7. Field Duplicate Analysis
8. TCL Compound Identification
9. Compound Quantitation and Reported Detection Limits
10. Overall Assessment of Data for the Case

3.01.2 Target Compound List Inorganics

Target Compound List inorganics were analyzed for in sixty-nine samples using US EPA Contract Laboratory Program (CLP) analytical methods and reporting protocols outlined

in the US EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, July, 1987. The requirements that were checked for the validation of inorganics analyses data are outlined in the US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Inorganic Analyses, June, 1988 and are as follows:

1. Holding Times
2. Calibration
 - a. Initial Calibration Verification
 - b. Continuing Calibration Verification
3. CRDL Standard Recovery
4. Blanks
 - a. Preparation Blank Analysis
 - b. Method Blank Analysis
 - c. Analytical Sequence
5. Interference Check Sample Analysis (ICP only)
6. Matrix Spike Sample Analysis
7. Duplicates
 - a. Laboratory Duplicate Sample Analysis
 - b. Field Duplicate Sample Analysis
8. Laboratory Control Sample Analysis
9. Furnace Quality Control Analysis
 - a. Post Digestion Spike Recovery
 - b. Duplicate Analysis Precision
 - c. Method of Standard Additions Analysis
10. Serial Dilution Analysis (ICP only)
11. Instrument Detection Limits
12. Sample Result Verification
13. Overall Assessment of Data for the Case

3.01.3 Total Organic Halides (TOX)

TOX analyses were performed on two samples using protocols outlined in "Total Organic Halide, Interim Method 450.1", US EPA, Office of Research and Development, EMSL, November 1980. Validation of sample data was performed based on QA/QC criteria specified in the analytical protocol and by O'Brien & Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

1. Holding Times
2. Blanks
 - a. Standard Blank
 - b. Method Blank
3. Duplicates
 - a. Laboratory Duplicate Sample Analysis
 - b. Field Duplicate Sample Analysis
4. Instrument Calibration
5. Adsorption Efficiency Standard Recovery
6. Carbon Breakthrough Determination
7. Matrix Spike/Matrix Spike Duplicate Analysis

3.01.4 Sulfate

Sulfate analyses were performed on thirty-four samples using protocols outlined in Methods for the Chemical Analysis of Water and Wastes, US EPA - 600/4-79-020, Revised 1983. QA/QC criteria were not specified in the method, however, the data were validated using criteria established by O'Brien and Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

1. Data completeness
2. Holding Times
3. Reference Standard Recovery
4. Blanks

- a. Method Blank Analysis
- b. Rinse Water Blank Analysis
- c. Field Blank Analysis
- 4. Matrix Spike Sample Analysis
- 5. Laboratory Duplicate Sample Analysis

3.01.5 Total Organic Carbon (TOC)

TOC analyses were performed on three samples using protocols outlined in Methods for the Chemical Analysis of Water and Wastes, US EPA - 600/4-79-020, Revised 1983. QA/QC criteria were not specified in the method, however, the data were validated using criteria established by O'Brien and Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

- 1. Data Completeness
- 2. Holding Times
- 3. Calibration
 - a. Six Point Calibration Curve Verification
 - b. Inorganic Carbon Calibration Verification
 - c. Organic Carbon Calibration Verification
- 4. Method Blank Analysis
- 5. Reference Standard Recovery
- 6. Matrix Spike Sample Analysis
- 7. Laboratory Duplicate Sample Analysis

3.01.6 Volatile Halogenated Organics (VHO) and Volatile Aromatic Organics (VAO)

VHO and VAO analyses were performed on nine samples using protocols outlined in "The Determination of Halogenated Chemicals in Water by Purge and Trap Methods, Method 502.1", US EPA, EMSL, April 1981, revised 1986 and "The Analysis of Aromatic Chemicals in Water by the Purge and Trap Method, Method 503.1", US EPA, EMSL, April 1981, revised

1986. Validation of sample data was performed based on QA/QC criteria specified in the analytical protocols and by O'Brien & Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

1. Holding Times
2. Calibration
 - a. Five Point Calibration Curve
 - b. Continuing Calibration Verification
3. Instrument Performance
 - a. Chromatographic Resolution
 - b. Retention Time Shift
4. Blanks
 - a. Method Blank Analysis
 - b. Field Blank Analysis
5. Matrix Spike/Matrix Spike Duplicate Analysis
6. Reference Standard Analysis
7. Sample Quantitation and Detection Limits

3.02 December, 1989

3.02.1 Target Compound List Inorganics

Inorganic analyses and data validation were conducted on one-hundred-three samples as specified in Section 3.01.2.

3.02.2 Purgeable Halocarbons and Purgeable Aromatics

Purgeable halocarbon and purgeable aromatic analyses were performed on six samples using protocols outlined in Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, US EPA - 600/4-82-057, July 1982. Validation of sample data was performed based on QA/QC criteria specified in the analytical protocols and by O'Brien &

Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

- 1. Holding Times**
- 2. Calibration**
 - a. Three Point Calibration**
 - b. Continuing Calibration Verification**
- 3. Blanks**
 - a. Method Blank Analysis**
 - b. Field Blank Analysis**
- 4. Surrogate Recovery**
- 5. Matrix Spike/Matrix Spike Duplicate Analysis**
- 6. Reference Standard Recovery Analysis**
- 7. Sample Quantitation and Detection Limits**

3.02.3 Sulfate

Sulfate analyses and data validation were conducted on thirteen samples as specified in Section 3.01.4.

3.02.4 Chloride

Chloride analyses were performed on thirteen samples using protocols outlined in Methods for the Chemical Analysis of Water and Wastes, US EPA - 600/4-79-020, Revised 1983. QA/QC criteria were not specified in the method, however, the data were validated using criteria established by O'Brien and Gere Engineers, Inc. The following parameters were evaluated during validation of the data.

- 1. Data Completeness**
- 2. Holding Times**
- 3. Calibration**
 - a. Seven Point Calibration Curve**
 - b. Reference Standard Recovery Analysis**

4. **Blanks**
 - a. Method Blank Analysis
 - b. Rinse Water Blank Analysis
 - c. Field Blank Analysis
5. **Matrix Spike Sample Analysis**
6. **Laboratory Duplicate Sample Analysis**

SECTION 4 - DATA QUALITY EVALUATION

4.01 October, 1989

Seventy-five aqueous and soil samples were collected from sub-surface soil borings and ground water monitoring wells during this round of sampling. The case file for samples collected on August 15, 1989 noted problems with the handling and shipment of one sample. The following note was written into the case file, "*Rinse Blank Sample received without VOA vials. Cracked lids (2) on Site Primary B.*" No action is necessary regarding the lack of collection of VOA vials for the rinse blank since analyses of rinse blanks for volatile compounds are not performed. As a result of the two cracked lids, TOC and TOX analyses were not performed on sample Site Primary B as had been planned.

4.01.1 Target Compound List Organics

The volatile, semi-volatile and PCB/pesticide analytical data from four leachate samples were reviewed according to the QA/QC requirements presented in US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Organic Analyses, February, 1988.

Volatile and Semi-volatile Compounds

The following parameters were found to meet QA/QC criteria for this round of volatile and semi-volatile samples: Holding Times, GC/MS Instrument Tuning Criteria, Internal Standards Performance, TCL Compound Identification, Compound Quantitation, Tentatively Identified Compounds and System Performance.

Calibration (volatiles) - Initial calibrations met QA/QC criteria for all samples. Deficiencies were noted for the volatile, continuing calibration verification of 8/24/89. The percent difference (%D) between initial and continuing response factors exceeded QA/QC criteria for chloroethane (47.62%) and methylene chloride (29.11%). As a result of these excessive %Ds, methylene chloride should be considered approximate in samples I9175 and

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I9177. No action is necessary regarding these exceedences in samples in which these analytes were not detected.

Calibration (semi-volatiles) - Initial calibrations met QA/QC criteria for all samples. Deficiencies were noted for the semi-volatile, continuing calibration verification of 9/2/89. The percent difference (%D) between initial and continuing response factors exceeded QA/QC criteria for benzoic acid (27.05%), di-n-octylphthalate (28.83%) and 2,4-dinitrophenol (28.18%). Since these compounds were not detected in the affected samples no action is necessary regarding these exceedences.

Blank Analysis - Method blank analyses were performed at the proper frequency for volatile and semi-volatile analyses. Methylene chloride was detected in laboratory method blank number VBLK082401 at a concentration of 1 ug/L, and acetone was detected in trip blank number I9188 at a concentration of 3 ug/L. Based on an action level of ten times the highest blank concentration the following actions should be taken on affected samples. The methylene chloride results for leachate samples I9175 and I9177 should be replaced with detection limits, 50ug/L and 10ug/L, respectively. Bis(2-ethylhexyl)phthalate was detected in laboratory method blank number SBLK0821891 at a concentration of 3 ug/liter. Therefore, the sample results for bis(2-ethyl hexyl)phthalate in leachate samples I9175 and I9177 should be replaced with the detection limits, 19ug/L and 12ug/L, respectively. These sample results should be replaced because they may be partially or wholly due to blank contamination.

Surrogate Recovery - Volatile and base/neutral extractable (semi-volatile fraction) surrogate compound recoveries met QA/QC criteria. Low acid extractable (semi-volatile fraction) surrogate compound recoveries (1% - 8%) were achieved for leachate samples I9175 and I9177. Reanalysis of these samples also yielded low recoveries (1% - 7%). Reanalysis data has been presented by the laboratory as being of higher quality. However, due to the very low surrogate recoveries, non-detected sample results should be rejected for acid extractable compounds in these two samples. The following is a list of acid extractable compounds:

phenol	2-chlorophenol
2-methylphenol	4-methylphenol
2-nitrophenol	2,4-dimethylphenol
2,4-dichlorophenol	4-chloro-3-methylphenol
2,4,6,-trichlorophenol	2,4,5-trichlorophenol
2,4-dinitrophenol	4-nitrophenol
4,6-dinitro-2-methylphenol	pentachlorophenol

Matrix Spike/Matrix Spike Duplicate Analysis (MS/MSD) - Matrix spike recoveries and relative percent differences between spiked and duplicate spiked samples met QA/QC criteria for volatiles analyses. Low matrix spike recoveries were achieved for phenol (2%, 4%), 2-chlorophenol (3%, 9%) and 4-chloro-3-methylphenol (3%, 3%) in sample I9175. Relative percent difference criteria between the spiked and duplicate spiked samples were exceeded for phenol (67%) and 2-chlorophenol (100%) in sample I9175. As a result of these exceedences, the detection limits for phenol, 2-chlorophenol and 4-chloro-3-methylphenol should be rejected in leachate sample I9175.

Field Duplicate Analysis - Field duplicate samples were not collected. Due to the lack of duplicates, no action is possible regarding field precision.

Compound Quantitation and Reported Detection Limits - An approximately ten percent sample result verification was performed to confirm that sample results were calculated properly from the various instrument responses. No errors were noted for any of the analyses. Elevated detection limits were listed for the volatile analysis of sample I9175 and the semi-volatile analysis of sample I9177. Sample I9175 was diluted ten times and sample I9177 was diluted two times therefore, the standard CLP detection limits should be multiplied by the corresponding dilution factor in these samples. The elevated detection limits were found to be a result of matrix interferences (sample foaming). Sample results less than these detection limits and confirmed by mass spectrometry should be considered approximate.

Tentatively Identified Compounds (TIC)- TIC approximate concentrations are listed following the Target Compound List concentrations for each sample in Appendix A. TIC compounds have been qualitatively identified by a mass spectrometer library search. For TIC compounds identified, all major ions (greater than 10 percent relative intensity) in the reference spectrum were present in the sample spectrum and their relative intensities agreed to within 20 percent. Unidentifiable compounds are listed as unknown. Based on professional judgement, all TICs have been accurately classified.

System Performance - Based on instrument performance parameters it was determined that the GC/MS system was functioning properly during the analysis of the first round of samples collected at the National Smelting of New Jersey Site.

Overall Assessment of Data for the Case - The GC/MS system functioned properly during the analysis of samples. However, deficiencies most likely due to the sample matrix were noted. Reanalysis of samples could not improve either surrogate or matrix spike recoveries. In addition, matrix spike and surrogate recoveries for blank samples were all within criteria. Therefore, due to these matrix problems the detection limits for the acid extractable compounds should be rejected. The remaining detection limits may be used unqualified. For a further discussion of data usability refer to section 5.01.

PCB/Pesticide Compounds

The following parameters were found to meet QA/QC criteria for this round of PCB/pesticide samples: Holding Times, Pesticide Instrument Performance (DDT Retention Time, Standards Retention Time Windows, DDT and Endrin Degradation and DBC Retention Time Check), Blank Analysis and Reported Detection Limits. Since PCB/Pesticide compounds were not detected in any of the samples TCL Compound Identification and Compound Quantitation parameters are not applicable.

Calibration - The realative standard deviation (RSD) of response factors exceeded QA/QC criteria for the initial calibration of 4,4'-DDT on 8/23/89. No action is necessary regarding this excedence since all compounds were not detected. The percent difference (%D)

criteria of 20% between the initial and continuing calibration was exceeded for endrin on 8/25/89. No action is required because endrin was not detected in the samples run on that day. The laboratory performed the proper analytical sequence during the analysis of the samples.

Surrogate Recovery - The percent recovery criteria was exceeded for the surrogate compound dibutylchlorodate in sample I9175. The excessively high (432%) recovery does not warrant action since all PCB/pesticide compounds were not detected in this sample.

Matrix Spike/Matrix Spike Duplicate Analysis - Six out of twelve percent recovery (%R) and zero out of six, relative percent difference (RPD) exceeded criteria in sample I9175. No action is necessary since lindane, 4,4'DDT and endrin were not detected in this sample.

Field Duplicate Analysis - Field duplicate samples were not collected. Due to the lack of field duplicates, no action is possible regarding field precision.

Overall Assessment of Data for the Case - The chromatographic system functioned properly during the analysis of samples. The sample data may be used without further qualification. For a further discussion of data usability refer to Section 5.01.

4.01.2 Target Compound List Inorganics

The inorganics analytical data from sixty-nine samples were reviewed according to the QA/QC requirements presented in US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Inorganic Analyses, June, 1988.

The following parameters were found to meet QA/QC criteria for this round of inorganics samples: Holding Times, Interference Check Sample Analysis, Laboratory Check Sample Analysis, Serial Dilution Analysis and Sample Result Verification.

Calibration - The laboratory performed inorganic analyses with the proper analytical sequence which included the proper number of standards and blanks. Initial and continuing calibration standard recoveries for ICP analyses and continuing calibration standard recoveries for furnace analyses did not meet QA/QC criteria in a number of instances. Associated sample data should be considered approximate and biased based on the percent recovery of

the associated standard. The following table summarizes those calibration standard recoveries which exceeded QA/QC criteria, the actions taken and the affected samples.

<u>Date</u>	<u>Analyte</u>	<u>%Recovery</u>	<u>Action</u>	<u>Samples Affected</u>
9/18/89	Pb	111.5	J(+)	I9242
9/19/89	Pb	85.2	J(+)/UJ(-)	I9425, I9084
9/27/89	Se	113.5	J(+)	I9176, I9186
9/21/89	Pb	125.6	J(+)	I9175
	Pb	86.6	UJ(-)	I9181
9/12/89	Cd	86.3	J(+)/UJ(-)	I9237, I9241, I9246
	Cd	86.7	UJ(-)	I9247, I9249, I9252
	Cd	85.2	UJ(-)	I9253
9/16/89	Pb	111.9	J(+)	I9241, I9249
9/12/89	Cd	136.7	R(-)	I9254, I9255, I9380
9/18/89	Pb	123.2	J(+)	I9381, I9383
9/22/89	Pb	85.2	J(+)/UJ(-)	I9082, I9085, I9086
9/12/89	Cd	136.7	R(-)	I9183
9/23/89	Pb	89.3	UJ(-)	I9178, I9179
		83.1	J(+)/UJ(-)	I9182, I9184
		79.3	UJ(-)	I9185, I9187
10/5/89	Pb	111	J(+)	I9420, I9421

NOTES: (+) positive sample result
(-) non-detected sample result

Initial calibration curves for furnace analyses were evaluated based on the associated correlation coefficient. Several correlation coefficients did not meet the QA/QC criteria of ≥ 0.995 . Associated sample results and detection limits should be considered approximate. The following table summarizes those correlation coefficients which exceeded QA/QC criteria and the affected sample data.

<u>Date</u>	<u>Analyte</u>	<u>Corr. Coefficient</u>	<u>Samples Affected</u>
10/4/89	Sb	0.9870	I9084
9/12/89	Cd	0.9938	I9239
9/13/89	Cd	0.9922	I9084
9/27/89	Tl	0.9922	I9175, I9177, I9186
9/12/89	Cd	0.9938	I9237, I9240-41, I9246-47, I9249 I9252-53
9/15/89	Pb	0.9929	I9238, I9240
9/18/89	Pb	0.9926	I9252-53, I9255, I9381, I9383
10/6/89	Sb	0.9832	I9183
9/13/89	Cd	0.9920	I9081-85, I9178-80, I9182
10/5/89	Sb	0.9885	I9428

CRDL Standard Recovery - With the following exceptions, standards were analyzed for inorganic analytes at a concentration approximately two times the CRDL or IDL, whichever was larger for ICP, or at the CRDL or IDL whichever is larger for furnace. The antimony CRDL standard for furnace analysis was analyzed at a concentration of 10.0ug/L but should have been analyzed at the IDL or 3.0ug/L. The lead CRDL standard for ICP analysis was analyzed at 100ug/L but should have been analyzed at two times the IDL or 40.0ug/L. No action is necessary regarding these excursions. The following table summarizes those standard recoveries which exceeded QA/QC criteria (90% - 110%) and also impacted sample results.

<u>Date</u>	<u>Analyte</u>	<u>%Recovery</u>	<u>Action</u>	<u>Samples Affected</u>
9/18/89	Pb	70	J(+)	I9242
8/28/89	Sb	86.7	J(+)	I9175, I9177
8/28/89	Ag	120.0 115.0	J(+) J(+)	I9177 I9186
9/27/89	Se	116.0	J(+)	I9186, I9176
8/30/89	Pb	119.0	J(+)	I9254
9/18/89	Pb	136.7	J(+)	I9252, I9380, I9383
9/12/89	Cd	120.4	J(+)	I9077-78
9/22/89	Pb	70.0	J(+)	I9074

NOTES: (+) positive sample result
 (-) non-detected sample result

Blanks - Various elements were detected in preparation and laboratory blanks above the instrument detection limits. Sample data should be qualified based on the blank action level which is equivalent to five times the highest level of blank contamination detected. The following table summarizes those elements detected in blank samples and the corresponding required actions.

<u>Date</u>	<u>Element</u>	<u>Concentration</u> (ug/L)	<u>Sample</u> <u>Affected</u>	<u>Action</u>
8/28/89	Co	8.0	I9175	raise detection limit to 8ug/L
	Cu	5.0	I9084	raise detection limit to 8ug/L
	Ag	8.0	I9181	raise detection limit to 12ug/L
			I9177	raise detection limit to 12ug/L
			I9186	raise detection limit to 28ug/L
			I9250	raise detection limit to 37ug/L
			I9251	raise detection limit to 34ug/L
	V	5.0	I9175	raise detection limit to 16ug/L
	Se	5.0	I9177	raise detection limit to 7ug/L
			I9186	raise detection limit to 22ug/L
9/21/89	Pb(F)	3.0	I9250	raise detection limit to 8.4ug/L
9/18/89	As	1.7	I9240	raise detection limit to 3.1ug/L
8/30/89	Pb(ICP)	23.0	I9254	raise detection limit to 103ug/L
9/15/89	Pb(F)	2.7	I9238	raise detection limit to 9.4ug/L
			I9240	raise detection limit to 9.8ug/L
9/18/89	Pb(F)	2.7	I9252	raise detection limit to 5.9ug/L
			I9253	raise detection limit to 13ug/L
			I9255	raise detection limit to 9.9ug/L
			I9380	raise detection limit to 2.7ug/L
			I9381	raise detection limit to 6.6ug/L
			I9383	raise detection limit to 3.4ug/L
9/16/89	Pb(F)	2.7	I9241	raise detection limit to 10.7ug/L
			I9246	raise detection limit to 2.7ug/L
			I9249	raise detection limit to 4.9ug/L
8/30/89	Cd	4.0	I9079	raise detection limit to 16.0ug/L
	Cr	5.0	I9086	raise detection limit to 15.0ug/L
			I9183	raise detection limit to 3.0ug/L
9/18/89	As	0.67mg/kg	I9425	raise detection limit to 2.78mg/kg
			I9428	raise detection limit to 2.04mg/kg
9/12/89	Pb(ICP)	3.3mg/kg	I9415	raise detection limit to 10.7mg/kg
			I9422	raise detection limit to 15.9mg/kg

NOTES: (F) sample analysis performed by furnace atomic absorption spectroscopy
(ICP) sample analysis performed by inductively coupled plasma spectroscopy

Matrix Spike Sample Analysis - Matrix effects on the digestion procedure and measurement methodology were evaluated through the use of spiking samples. The following

table summarizes excursions from matrix spike recovery criteria. The table also contains the appropriate actions to be taken for the affected samples. Those samples for which a matrix spike sample analysis was not performed, associated positive sample data less than four times the spiking level should be approximated.

<u>Date</u>	<u>Element</u>	<u>% Recovery</u>	<u>Actions</u>	<u>Affected Samples</u>
8/28/89	Ni	74.4	J(+)/UJ(-)	I9175-77, I9186, I9242, I9250-51 I9256-57, I9084
9/20/89	Se	0	R(+)/R(-)	I9175-77, I9186
9/18-20/89	Pb	not reported	J(+) \leq 80ug/L (furnace)	I9242, I9245, I9251
10/4/89	Sb	40 (post digestion 47)	J(+)/UJ(-)	I9237-38
9/23/89	Pb	39 (post digest 128.5)	J(+)/UJ(-) (furnace)	I9074-78, I9080-86 I9178-80, I9187
10/5/89	Pb	not reported	J(+) \leq ug/L (furnace)	I9420-21
9/20/89	Se	55.0 (post digestion 96%)	UJ(-)	I9425, I9428

NOTES: (+) positive sample result
 (-) non-detected sample result
 (furnace) sample analysis performed by furnace atomic absorption spectroscopy

Duplicates - Laboratory precision was evaluated through the duplicate analysis of an environmental sample. However, for those analytes which did not receive duplicate analysis, all associated positive sample results should be considered approximate. The following table summarizes laboratory duplicate sample analyses results, actions and associated samples.

<u>Date</u>	<u>Element</u>	<u>RPD/>CRDL</u>	<u>Action</u>	<u>Samples Affected</u>
8/28/89	Al	102.8	R(+)	I9176-77, I9186
10/4/89	Sb	114.7	R(+)	I9175-77, I9186
9/12/89	As	34.7	J(+)	I9175-77, I9186, I9248, I9256
8/28/89	Ba	>CRDL	R(+)	I9175-77, I9186
	Ca	45.4	J(+)	I9175-77, I9186
	Cr	57.5	R(+)	I9175-77, I9186, I9239, I9242-45 I9248, I9250-51, I9084
	Cu	56.1	R(+)	I9175-77, I9186, I9242-45, I9250-51
	Ni	29.5	J(+)	I9176-77, I9186, I9242, I9250-51 I9256-57
	K	31.7	J(+)	I9175-77, I9186
	Na	71.4	R(+)	I9175-77, I9186
	Zn	33.1	J(+)	I9175-77, I9186, I9250-51
	Pb	not reported	J(+) (ICP)	I9243-44
8/30/89	Pb	not reported	J(+) (ICP)	I9079
10/5/89	Pb	not reported	J(+) (furnace)	I9420-21

NOTE: >CRDL signifies that duplicate sample results less than five times the CRDL did not agree to within +/-CRDL for aqueous samples or +/-2xCRDL for soil samples.
 (+) positive sample result
 (-) non-detected sample result
 (furnace) sample analysis performed by furnace atomic absorption spectroscopy

The precision of the field collection techniques were evaluated through a comparison of data from each of the duplicate samples. The following table summarizes field duplicate sample analyses results, actions and associated samples.

<u>Date</u>	<u>Element</u>	<u>RPD/>CRDL</u>	<u>Action</u>	<u>Samples Affected</u>
9/19/89	Pb	>CRDL	none	samples qualified due to poor lab precision
9/12/89	Pb	138	R(+)	I9424, I9427
	Pb	54.3, 77.5	J(+)	I9412-14, I9416-19, I9423, I9425-26 I9428-30

NOTE: >CRDL signifies that duplicate sample results less than five times the CRDL did not agree to within +/-CRDL for aqueous samples or +/-2xCRDL for soil samples.
 (+) positive sample result

Furnace Quality Control Analysis - To assess precision, all furnace analyses were performed in duplicate and the percent relative standard deviation (%RSD) of the two results was calculated. The following analyses for the samples listed exceeded the 20% criteria: selenium in samples I9176 and I9186; and antimony in sample I9425. No action is necessary regarding the selenium exceedences since the sample results have been rejected due to poor agreement between laboratory duplicates. The antimony sample result should be considered approximate. To assess method accuracy and matrix effects, each sample for furnace analysis was spiked. The percent recoveries of these post-digestion spikes were evaluated to determine the need for the method of standard additions (MSA). However, MSA was not performed for any of the samples for which it was required. As a result, the following analytes for the samples listed should be considered approximate: Cd/I9248, I9076, I9081, I9085; Pb/I9245, I9251, I9175, I9078; and Sb/I9237. For the following samples, the sample concentration was less than half the concentration of the post digestion spike and the spike recovery range exceeded the 85% - 115% recovery range limit. The following table summarizes the excursions and their effect on sample results.

<u>Sample Number</u>	<u>Element</u>	<u>Percent Recovery</u>	<u>Action</u>
I9084	Sb	72.0	UJ(-)
	Pb	83.0	UJ(-)
I9256	As	60.0	UJ(-)
	Pb	47.0	UJ(-)
I9257	As	68.5	J(+)
	Pb	81.0	UJ(-)
I9175	Tl	118.4	A
I9176	Pb	0, 121.5	R(-)
I9177	Pb	0	R(-)
I9181	Pb	0	R(-)
I9186	Pb	0	R(-)
I9239	Cd	72.0	UJ(-)
	Pb	40.0	UJ(-)
I9237	Sb	64.0	J(+)
I9238	Sb	47.0	UJ(-)
	Pb	55.5	UJ(-)
I9240	As	82.0	UJ(-)
	Pb	50.0	UJ(-)
I9246	Cd	84.0	UJ(-)
I9247	Cd	80.2	UJ(-)
I9250	Pb	65.0	UJ(-)
I9252	Cd	79.6	UJ(-)
I9381	Pb	65.5	UJ(-)
I9080	Pb	64.5	UJ(-)
	Cd	81.8	UJ(-)
I9082	Pb	84.0	UJ(-)
I9178	Pb	73.0	UJ(-)
I9182	Pb	75.5	UJ(-)
I9185	Pb	75.0	UJ(-)
I9187	Pb	81.0	UJ(-)
I9184	Cd	82.0	UJ(-)
I9187	Cd	76.2	UJ(-)
I9428	Sb	55.0	UJ(-)

NOTE: A - accept sample result
 (-) - non-detected sample result
 (+) - positive sample result

Instrument Detection Limits - Instrument detection limits were found to be lower than the CRDLs for all analyses with the exception of lead analysis performed by ICP. In this

instance the CRDL is 3ug/L and the instrument detection limit is 20ug/L. Lead sample results determined by ICP were five times the instrument detection limit therefore, no qualification of sample results is required. In several instances sample results and sample detection limits less than the instrument detection limits were reported on the sample result summary forms. In all cases the summary form was changed to reflect the actual instrument detection limit. The following table summarizes changes made to the sample results summary forms.

<u>Sample Number</u>	<u>Element</u>	<u>Reported Result (ug/L)</u>	<u>New Result (ug/L)</u>
I9175	Tl	5.0U	3.0UJ
I9177	Tl	50.0U	30.0UJ
I9186	Tl	50.0U	30.0UJ
I9084	Pb	1.0U	2.0UJ
I9239	Pb	1.0U	2.0UJ
I9248	Pb	10.0U	20.0U
I9256	Pb	5.0U	10.0UJ
I9257	Pb	5.0U	10.0UJ
I9246	Pb	1.6	3.0U
I9247	Pb	1.0U	3.0U
I9380	Pb	2.3	3.0U
I9074	Pb	1.0U	3.0UJ
I9080	Pb	1.0U	3.0UJ
I9081	Pb	5.0U	15.0U
I9082	Pb	1.0U	3.0UJ
I9178	Pb	1.0U	3.0UJ
I9179	Pb	1.0U	3.0UJ
I9180	Pb	5.0U	15.0U
I9182	Pb	1.0U	3.0UJ
I9183	Pb	1.0U	3.0UJ
I9184	Pb	1.1	3.0U
I9185	Pb	1.0U	3.0UJ
I9187	Pb	1.0U	3.0UJ

Overall Assessment of Data for the Case - Deficiencies were noted that caused the rejection of some sample data. Rejection of data occurred due to problems with instrument calibration, matrix spike analysis, laboratory and field duplicates and furnace post-digestion spike analysis. However, rejection or approximation of the data for the whole case is not warranted since the deficiencies noted are isolated and do not appear to indicate system malfunction.

4.01.3 Total Organic Halides (TOX)

Validation of data for two samples for TOX analysis was performed based on QA/QC criteria specified in the analytical protocol and by O'Brien & Gere Engineers, Inc. The following parameters were found to meet QA/QC criteria for this round of total organic halides: Holding Times, Blank Analysis, Instrument Calibration, Adsorption Efficiency Standard Recovery and Matrix Spike/Matrix Spike Duplicate Analysis.

Laboratory Duplicate Sample Analysis - Duplicate analysis is required for all samples, blanks and standards. Duplicate analysis was not performed for the standard blank or the last calibration standard analyzed. Upon review of the sample data, no action was taken because both samples were non-detected for TOX.

Field Duplicate Sample Analysis - Field duplicate samples were not collected. Without a measure of field precision, no action is possible regarding field duplicates.

Carbon Breakthrough Determination - Carbon breakthrough determination criteria were not met for samples I9176 (37.8%) and I9186 (25.9%). All second-column measurements should not exceed 10% of both column measurements. No action was taken regarding this excursion, because both samples were non-detected for TOX. Dilution of the samples in order to eliminate matrix interferences may have contributed to the failure of carbon breakthrough criteria.

4.01.4 Sulfate

The data for sulfate analysis from thirty-four samples were validated using criteria established by O'Brien & Gere Engineers, Inc. The following parameters were found to meet QA/QC criteria for this round of sulfate analysis: Reference Standard Recovery, and Blank Analysis.

Holding Times - Holding time criteria of 28 days was exceeded for the following samples collected on 8/15/89 and analyzed on 9/15/89: I9183, I9182, I9181, I9180. In addition the following samples collected on 8/16/89 and analyzed on 9/15/89 also failed to meet the holding time criteria: I9380 and I9381. The results for these samples should be approximated.

Matrix Spike Sample Analysis - The 75%-125% criteria for matrix spike analysis was exceeded for two of the four samples spiked. However, no corrective action was necessary because the sample result exceeded the amount spiked by a factor of four or more in each case.

Laboratory Duplicate Sample Analysis - Several laboratory duplicate samples were analyzed. Only one sample duplicate (I9380) exceeded the > 20% or the > +/-CRDL criteria when sample concentration is less than five times the contract required detection limit (CRDL). The samples analyzed on the same day as I9380 are affected and are as follows: I9183, I9182, I9181, I9180, I9380, and I9281. The sulfate results for these samples should be approximated.

Data Completeness - The data completeness review involved several factors regarding data presentation and are as follows: legibility and readability of the raw data, correctness of calculations, and frequency of quality control samples analyzed. The sulfate data were presented in a legible column format. Data were present and sample calculations were completed correctly. Percent recovery and relative percent difference for matrix spike and duplicate analyses were incorrectly calculated in the raw data. However, these results were reported correctly on the CLP forms. Two transcription errors were noted. First the sulfate result for sample I9070 was not reported on Form I. A review of the chain of custody

indicated that sulfate was to be analyzed on this sample. According to the raw data, this sample was analyzed on 8/22/89 with a result of 250,000 mg/L. Secondly, the duplicate result for I9380 was incorrectly reported as 7000. A review of the raw data indicated that this result was actually 9000 mg/L. This error does affect the sample data. Quality control samples which include matrix spikes, duplicates, reference standards, and blanks were analyzed at the required frequency. Overall no corrective action was taken regarding data completeness criteria.

4.01.5 Total Organic Carbon (TOC)

The data for TOC analysis from three samples were validated according to criteria established by O'Brien & Gere Engineer's, Inc. The following parameters were found to meet QA/QC criteria for this round of samples: Holding Times, Calibration, Method Blank Analysis, Reference Standard Analysis and Laboratory Duplicate Analysis.

Matrix Spike Sample Analysis - The percent recovery for matrix spike analysis failed the 75%-125% criteria for sample I9177 (67.5%). Therefore, the TOC data for the following samples should be approximated: I9186, I9177, and I9176.

Data Completeness - The raw data for TOC analysis was complete, although due to poor reproduction it was difficult to read. Samples concentrations were calculated correctly and the proper number of quality control samples were analyzed. Therefore, corrective action regarding data completeness was not necessary.

4.01.6 Volatile Halogenated Organics (VHO) and Volatile Aromatic Organics (VAO)

Validation of sample data from nine samples for VHO and VAO analysis was performed based on QA/QC criteria specified in the analytical method and by O'Brien & Gere Engineers, Inc. The following parameters were found to meet QA/QC criteria for this round of sampling: Holding Times and Matrix Spike/Matrix Spike Duplicate Analysis.

Calibration - Five point calibrations were performed for both VHO and VAO analysis. However the calibrations did not include all the compounds listed in methods 502.1 and 503.1.

In addition several compounds exceeded the relative standard deviation (RSD) criteria of <10% for initial calibration. The affected samples are I9084 (VHO analysis only), I9250 and I9251 (VAO analysis only). When the 10% RSD criteria is exceeded, the analyst must use the calibration curve to calculate the concentration of the compound. Upon review of the raw data, the analyst did not use the appropriate calibration curve to calculate the concentrations of the affected compounds in these samples. For sample I9084, the concentrations for the following compounds should have been calculated using the calibration curve: bromochloromethane and dibromochloromethane. The results for these two compounds should be considered approximate. For samples I9250 and I9251 (duplicate of I9250), the sample results for the following compounds should be approximated, o-xylene and m-xylene. The sample results for these compounds were calculated using a one-point calibration standard using the confirmation column.

For continuing calibration, the criteria for percent difference (%D) between initial and continuing response factors is established in the analytical protocol as <20%. For VAO analysis a continuing calibration check could not be evaluated for o-xylene and m-xylene since a five point initial calibration on the confirmation column was not performed for these two analytes. Therefore, the concentrations of these two compounds should be approximated in the affected samples (I9250 and I9251). For VHO analysis, the following compounds failed %D criteria: 1,1-dichloroethene (34%); carbon tetrachloride (31%); and bromoform (49%). Only 1,1-dichloroethene was detected in the analyzed samples therefore, corrective action was limited to this compound. The results for 1,1-dichloroethene in samples I9256 and I9257 (duplicate of I9256) should be approximated.

Corrective action taken in this data validation was limited to those compounds that were detected in the samples analyzed. Action was not taken on the non-detected compounds that failed initial or continuing calibration criteria.

Instrument Performance - Instrument performance was evaluated by reviewing chromatographic resolution and retention time shifts. Both the VAO and VHO analytical methods have inherent co-elution problems which involve several compounds, therefore

confirmation analysis using a dissimilar column must be performed. Resolution problems were encountered in VHO analysis for the low level standard at 0.5ppb. Confirmation analysis was performed for samples in which commonly co-eluting compounds were detected.

Blanks - For VAO analysis compounds of interest were not detected in any of the method, rinse and trip blanks. For VHO analysis, compounds of interest were not detected above the instrument detection limit for the method and trip blank. Contamination by several compounds was present in the rinse blank. No action was taken regarding this excursion for bromochloromethane, 1,2-dichloropropane, and dibromochloromethane because these compounds were not detected in the samples. However, chloroform was detected in the rinse blank as well as samples I9250 and I9251 (Duplicate of I9250). The chloroform results for these samples should be flagged with a "U" indicating an elevated detection limit and also that the presence of chloroform might be partially or wholly due to blank contamination.

Reference Standard Analysis - A Reference standard was analyzed for both VHO and VAO analyses. Action was taken only on the compounds that were detected in the samples that failed the 80%-120% criteria. For VAO analysis all the compounds analyzed in the reference standard met criteria. For VHO analysis, the following compounds exceeded criteria; 1,1-dichloroethene and 1,2-dichloropropane. Therefore, the results for these compounds should be approximated. The following samples are affected: I9256 and I9257 for 1,1-dichloroethene; and I9084 for 1,2-dichloropropane. In addition it was noted that tetrachloroethene was detected in some samples but was not present in either the VAO or the VHO reference standards. Therefore, an evaluation of accuracy based on reference standard analysis was not possible.

Sample Quantitation and Detection Limits - Sample quantitation was accomplished several ways. For VAO analysis, the compounds m-xylene and o-xylene were quantitated using one point calibration on the confirmation column. These results should be approximated in samples I9250 and I9251 since, according to the method, a five point calibration curve must be used to quantitate results. Tetrachloroethene, ethyl benzene and toluene were quantitated using response factors calculated from standards analyzed the same

day as the samples. These response factors were all within 10% of the initial calibration, therefore no qualification of results is necessary. For VHO analysis, sample quantitation was accomplished through the use of a response factor calculated from the continuing calibration standard. As previously noted in the calibration discussion, 1,1-dichloroethene failed continuing calibration criteria and therefore the results in samples I9256 and I9257 should be approximated.

The results for tetrachloroethene which is common to both VAO and VHO analyses, did not agree. Upon review of the raw data, it is assumed that the VAO result is more accurate due to the fact that a smaller dilution (1:10) was made for this analysis. The sample analyzed for VHO was diluted at 1:100, which resulted in a concentration for tetrachloroethene very close to the detection limit. Based on the failure of the analyst to analyze a reference standard containing tetrachloroethene for either analysis, no other evaluation for accuracy could be made. Therefore, both results for samples I9256 and I9257 should be considered approximate.

Sample detection limits for several samples were raised due to high concentrations of certain compounds and matrix interferences. Quantitation of detection limits reflected the dilutions made by the analyst.

Field Duplicate Analysis - Two field duplicate samples were also collected and analyzed. Both samples were within expected QA/QC limits for relative percent difference for volatile analysis.

4.02 December, 1989

One hundred and thirteen aqueous and soil samples were collected from sub-surface soil borings and ground water monitoring wells during this round of sampling. Nothing unusual occurred during the collection or shipment of samples.

4.02.1 Target Compound List Inorganics

The inorganics analytical data from one-hundred-three samples were reviewed according to the QA/QC requirements presented in US EPA Laboratory Data Validation - Functional Guidelines for Evaluation of Inorganic Analyses, June, 1988.

The following parameters were found to meet QA/QC criteria for this round of inorganics samples: Holding Times, Interference Check Sample Analysis, Serial Dilution Analysis and Sample Result Verification.

Calibration - The initial calibration recovery (114%) and a continuing recovery (119.7%) exceeded criteria for cadmium on 12/5/89. As a result, cadmium results in samples J2622 and J2627 should be considered approximate. The laboratory performed inorganic analyses with the proper analytical sequence which included the proper number of standards and blanks. Initial calibration curves for furnace analyses were evaluated based on the associated correlation coefficient. The correlation coefficients for this round of metals analysis met the QA/QC criteria of ≥ 0.995 .

CRDL Standard Recovery - Standards were analyzed for inorganic analytes at a concentration approximately two times the CRDL or IDL, whichever was larger. The following table summarizes those standard recoveries which exceeded QA/QC criteria and also impacted sample results. Those affected samples listed below should be considered approximate.

<u>Date</u>	<u>Analyte</u>	<u>%Recovery</u>	<u>Action</u>	<u>Samples Affected</u>
11/21/89	Cr	115.0	J(+)	J2597
11/21/89	Pb	114.0	J(+)	J2809
11/22/89	Pb	170.0	J(+)	J2619, J2625-J2627
11/14/89	Pb	117.0	J(+)	J3077, J3086
11/21/89	Se	114.0	J(+)	J3030, J3031

NOTES: (+) positive sample result

Blanks - Various elements were detected in preparation and laboratory blanks above the instrument detection limits. Sample data should be qualified based on the blank action level which is equivalent to five times the highest level of blank contamination detected. The following table summarizes those elements detected in blank samples and the corresponding required actions.

<u>Date</u>	<u>Element</u>	<u>Concentration</u> (ug/L)	<u>Sample</u> <u>Affected</u>	<u>Action</u>
11/21/89	Cd	3.0	J2597	raise detection limit to 14ug/L
11/21/89	Cr	2.0	J2619	raise detection limit to 7ug/L
			J2621	raise detection limit to 3ug/L
			J2622	raise detection limit to 5ug/L
			J2623	raise detection limit to 4ug/L
11/27/89	As	7.9	J2620	raise detection limit to 5.6ug/L
11/22/89	Pb	1.9	J2619	raise detection limit to 5ug/L
			J2620	raise detection limit to 8.4ug/L
			J2621	raise detection limit to 8.2ug/L
12/5/89	Cd	1.3	J2622	raise detection limit to 1.1ug/L
11/14/89	Pb	32.0	J3042	raise detection limit to 14.6mg/kg
			J3045	raise detection limit to 13.9mg/kg
			J3058	raise detection limit to 13.9mg/kg
			J3070	raise detection limit to 15.3mg/kg
			J3086	raise detection limit to 9.6mg/kg
11/15/89	Pb	45.0	J3090	raise detection limit to 20.0mg/kg

Matrix Spike Sample Analysis - The following table summarizes excursions from matrix spike recovery criteria, affected samples and appropriate actions. For those samples which a matrix spike sample analysis was not performed, associated positive sample data less than four times the spiking level should be approximated.

<u>Date</u>	<u>Element</u>	<u>% Recovery</u>	<u>Actions</u>	<u>Affected Samples</u>
11/27/89	Se	62.0	UJ(-)	J2597
11/22/89	Pb	not reported	J(+) ≤ 2000ug/L (furnace)	J2602, J2604, J2606-08
11/22/89	Pb	-3.5% post digestion 60%	J(+)/J(-) (furnace)	J2612, J2615, J2617-23 J2625-27
12/5/89	Cd	not reported	J(+) ≤ 20ug/L	J2627
11/21/89	Cr	not reported	J(+) ≤ 800ug/L	J2620, J2627
11/21/89	Pb	not reported	J(+) ≤ 2000ug/L (ICP)	J2616
11/14/89	Pb	213.8	R(+) (ICP)	J3068-69, J3071-85, J3087
11/21/89	Sb	60.0 (post digestion 98%)	J(+)/UJ(-)	J3029-31
11/21/89	Pb	not reported	J(+) ≤ 500mg/kg (ICP)	J3031
11/21/89	Zn	73.2 (post digestion 98%)	J(+)/UJ(-)	J3029-31

NOTES: (+) positive sample result
 (-) non-detected sample result
 (furnace) sample analysis was performed by furnace atomic absorption spectroscopy
 (ICP) sample analysis was performed by inductively coupled plasma spectroscopy

Duplicates - Field duplicate samples were not collected for aqueous samples. Without a measure of field precision, no action is possible regarding field duplicates. Two field duplicate pairs were collected for soil samples. The agreement between duplicate samples did not meet QA/QC criteria. However, no action is necessary regarding this exceedence. Laboratory precision was evaluated through the duplicate analysis of an environmental sample. However, for those analytes which did not receive duplicate analysis, all associated positive sample results should be considered approximate. The following table summarizes laboratory duplicate sample analyses results, actions and associated samples.

<u>Date</u>	<u>Element</u>	<u>RPD/>CRDL</u>	<u>Action</u>	<u>Samples Affected</u>
11/22/89	Pb	>CRDL	R(+) (furnace)	J2612, J2615, J2617-18, J2625-27
11/21/89	Pb	not reported	J(+) (ICP)	J2616, J2624
12/5/89	Cd	not reported	J(+)	J2627
11/21/89	Cr	not reported	J(+)	J2620, J2627
11/14/89	Pb	85.3%	J(+) (ICP)	J3068-69, J3071-85, J3087
11/21/89	Sb	>CRDL x 2	R(+)	J3029-30
11/21/89	Pb	not reported	J(+) (ICP)	J3029-31

NOTE: >CRDL signifies that duplicate sample results less than five times the CRDL did not agree to within +/-CRDL for aqueous samples or +/-2xCRDL for soil samples.
 (+) positive sample result
 (furnace) sample analysis was performed by furnace atomic absorption spectroscopy
 (ICP) sample analysis was performed by inductively coupled plasma spectroscopy

Laboratory Control Sample Analysis - An external quality control sample was analyzed in conjunction with the samples in order to monitor digestion efficiency and method accuracy. Recovery criteria were met except for antimony and copper analyses which were conducted on 11/21/89. Low recoveries were achieved from the solid sample for these analytes. As a result, copper results in samples J3029 - J3031 and antimony results in samples J3029 - J3030 should be approximated. In addition, the detection limit for antimony in sample J3031 should be approximated.

Furnace Quality Control Analysis - To assess method precision all furnace analyses were performed in duplicate and the percent relative standard deviation (%RSD) of the the two results was calculated. The following analyses for the samples listed exceeded the 20% criteria: cadmium and lead in sample J2627, and selenium in samples J3030-31. These sample results should be considered approximate. Method of standard additions (MSA), when performed met QA/QC criteria for correlation coefficients which must be equal to or exceed 0.995. MSA was not performed when it was required for antimony in sample J2597. As a result, this sample result should be considered approximate. For the following samples, the sample concentration was less than half the concentration of the post digestion spike and the spike recovery exceeded the 85% - 115% recovery range. The following table summarizes the

excursions and their effect on sample results.

<u>Sample Number</u>	<u>Element</u>	<u>Percent Recovery</u>	<u>Action</u>
J2597	Se	36, 134	A
J2611	Pb	11.5, 70	UJ(-)
J2619	As	55	UJ(-)
	Cd	204	A
J2620	Cd	184	A
J2621	Cd	227.9	A
J2622	Cd	227.8	J(+)
J2623	Cd	242.6	A
J2627	Cd	209	J(+)
J3030	Se	136	J(+)

NOTE: A - accept sample result
(-) - non-detected sample result
(+) - positive sample result

Instrument Detection Limits - Instrument detection limits were found to be lower than the CRDLs for all analyses with the exception of lead analysis performed by ICP. In this instance the CRDL is 3ug/L and the instrument detection limit is 20ug/L. Therefore, all lead sample results determined by ICP which are not five times the instrument detection limit should be considered approximate. Thus, the lead results and elevated detection limits due to blank contamination in samples J3042, J3058, J3077, and J3086 should be approximated. In several instances sample results and sample detection limits which were less than the instrument detection limits were reported on the sample result summary forms. In all cases the summary form was changed to reflect the actual instrument detection limit. The following table summarizes the changes that were made to the sample results summary forms.

<u>Sample Number</u>	<u>Element</u>	<u>Reported Result (ug/L)</u>	<u>New Result (ug/L)</u>
J2597	Se	10.0U	20.0UJ
J2611	Pb	10.0U	20.0UJ
J2619	As	1.0U	3.0UJ
J2621	As	1.0U	3.0U
	Cr	3.0B	5.0U
J2622	As	1.0U	3.0U
J2623	As	1.0U	3.0U
	Cr	4.0B	5.0U
J2625	Pb	1.6B	2.0U
J2626	Pb	1.2B	2.0U
J2627	As	1.0U	3.0U
	Cr	1.0B	5.0U
	Pb	1.3B	2.0U

Overall Assessment of Data for the Case - Deficiencies were noted that caused the rejection of some sample data. Rejection of data occurred due to problems with matrix spike analysis, and laboratory duplicate analysis. Deficiencies were noted for all of the parameters discussed in the previous sections. However, rejection or approximation of the data for the whole case is not warranted since the deficiencies noted are isolated and do not indicate system malfunction.

4.02.2 Purgeable Halocarbons and Purgeable Aromatics

Validation of sample data from six samples for purgeable volatiles and aromatics was performed based on QA/QC criteria specified in the analytical methods and by O'Brien & Gere Engineers, Inc. The following parameters met QA/QC criteria: Holding Times, Method and Field Blank Analysis, Surrogate Recovery, Reference Standard Analysis, and Matrix Spike/Matrix Spike Duplicate Analysis.

Calibration - For initial calibration, the analytical methods require three point calibration. Documentation of the initial three point calibration was not provided in the raw data. However, several continuing calibration standards at 10 ug/L were analyzed. Response factors were present in the raw data for these calibration standards. When these continuing

calibration response factors were compared to the initial calibration response factors present in the raw data, they agreed to within the 20% difference criteria. Based on limited documentation of initial and continuing calibration provided by the laboratory, all positive sample results should be approximated.

Sample Quantitation and Detection Limits - Samples were quantitated using the response factor indicated in the raw data for the volatile halogenated scan except for 1,3-dichlorobenzene. This compound was calculated using the response factor indicated in the raw data for the volatile aromatic scan. In addition confirmation analysis using a dissimilar column was performed for the detected compounds. All quantitation of detected compounds was done using the primary column. Therefore, all positive sample results should be approximated. Proper detection limits were reported.

4.02.3 Sulfate

Data validation for sulfate from thirteen samples was performed as specified in Section 4.01.4. The following parameters met QA/QC criteria: Data Completeness, Holding Times, Reference Standard Analysis, Method and Field Blank Analysis, and Laboratory Duplicate Analysis.

Matrix Spike Sample Analysis - Matrix spike percent recovery did not meet the 75%-125% criteria. Upon review of the raw data, it was determined that the sample was spiked incorrectly by the laboratory. As a result, an accurate measure of matrix effects was not possible. Without a measure of matrix effects qualification of the data was not possible. However, reference standard analysis indicates that the procedure was within expected accuracy criteria.

Blanks - The rinse blank was the only blank found to be contaminated with sulfate. An action level of five times this contamination was calculated (5mg/L). Samples containing concentrations of sulfate greater than the instrument detection limit and less than the action level were flagged with a "U". This qualifier indicates an elevated detection limit and that the sulfate detected might be wholly or partially due to the blank contamination. The only

sample affected was J2621 (3U). Samples containing sulfate greater than the action level do not need to be qualified.

4.02.4 Chloride

Data validation for chloride analysis was performed on results from thirteen samples using criteria established by O'Brien & Gere Engineers, Inc. The following QA/QC parameters met criteria: Data Completeness, Holding Times, Calibration, Blanks, Matrix Spike and Duplicate Analysis. All QA/QC criteria were met for chloride analysis, therefore no qualification of the data is necessary.

SECTION 5 - DATA USABILITY

5.01 October, 1989 Data Package

The first round of samples was collected between August 14 and 17, 1989 from sub-surface soil borings and ground water monitoring wells. Seventy-five aqueous, leachate and soil samples were collected and analyzed for the purpose of site characterization and assessing the risk posed by the site. The following discussion is a summary of the qualifications made to the sample data based on the data validation criteria outlined in Section 3. The specific QA/QC deficiencies resulting in the qualification of the sample data are contained in Section 4. Rejected sample data identified during the data validation should not be used for any qualitative or quantitative purposes. Approximated sample results or detection limits may be used for qualitative purposes or used for quantitative purposes with proper assumptions so as to not misrepresent the data.

5.01.1 Target Compound List Organics

For volatile organic analysis the detection limits for methylene chloride were raised in samples I9175 (50ug/L) and I9177 (10ug/L). Based on the data validation criteria established in Section 3, no other qualification of data was necessary. Therefore, 100% of the volatile organic CLP data is useable without further qualification.

For semi-volatile analysis, the detection limit for bis(2-ethylhexyl) phthalate was raised in samples I9175 (19ug/L) and I9177 (12ug/L). The detection limits for the acid extractable compounds were rejected in two leachate samples I9175 and I9177 due to matrix interferences. The remainder of the semi-volatile data can be used without further qualification.

No qualification was necessary for PCB/Pesticide analysis. Deficiencies from QA/QC criteria were evident but qualification of the data was not necessary because PCB/Pesticide compounds were not detected in the samples. Therefore, 100% of the PCB/Pesticide data can be used without qualification.

5.01.2 Target Compound List Inorganics

The following is a summary of sample data by analyte that was rejected based on QA/QC criteria outlined in section 4.

Cadmium: I9254, I9255, I9380, I9183.

Lead: I9181, I9424, I9427, I9176, I9177, I9186.

Aluminum: I9176, I9177, I9186.

Selenium: I9175, I9176, I9177, I9186.

Antimony: I9175, I9176, I9177, I9186.

Barium: I9175, I9176, I9177, I9186.

Chromium: I9084, I9175, I9176, I9177, I9186, I9239, I9242, I9243, I9244, I9245, I9248, I9250, I9251.

Copper: I9175, I9176, I9177, I9186, I9242, I9243, I9244, I9245, I9250, I9251.

Sodium: I9175, I9176, I9177, I9186.

The following data was approximated based on data validation criteria outlined in Section 4.

Cadmium: I9076, I9077, I9078, I9080, I9081-85, I9178-80, I9182, I9184, I9187, I9237, I9239-41, I9246-49, I9252-53.

Lead: I9074-86, I9175, I9178-80, I9182-85, I9187, I9238-45, I9250-51, I9256-57, I9381, I9412-14, I9416-21, I9423, I9425-26, I9428-30.

Antimony: I9084, I9183, I9237-38, I9425, I9428.

Thallium: I9175, I9177, I9186.

Nickel: I9084, I9175-77, I9186, I9250-51, I9242, I9256-57.

Arsenic: I9175-77, I9186, I9240, I9248, I9256-57.

Calcium: I9175-77, I9186.

Potassium: I9175-77, I9186.

Zinc: I9175-77, I9186, I9250-51.

The following detection limits were raised due to blank contamination:

Cobalt: I9175.

Copper: I9084, I9181.

Silver: I9177, I9186, I9250-51.

Vanadium: I9175, I9177.

Selenium: I9186.

Lead: I9238, I9240-41, I9246, I9249, I9250, I9252-55, I9380-81, I9383, I9415, I9422.

Arsenic: I9240, I9425, I9428.

Cadmium: I9079, I9086, I9183.

Chromium: I9183

5.01.3 Non-CLP Inorganic Analysis

Data were not rejected for Non-CLP Inorganic Analysis. No qualification of data was necessary for Total Organic Halide (TOX) analysis. Sample data for sulfate was approximated for the following samples: I9180-83, and I9380-81. Sample data for Total Organic Carbon (TOC) was approximated for the following samples: I9176-I9177 and I9186. The remaining data can be used without further qualification.

5.01.4 Volatile Halogenated Organic (VHO) and Volatile Aromatic Organic Analysis (VAO)

Sample data were not rejected for VHO or VAO analysis. The compounds in the following samples were approximated for VHO and VAO analysis:

I9084: bromodichloromethane, dibromochloromethane, and 1,2-dichloropropane.

I9250-51: o-xylene and m-xylene.

I9256-57: 1,1-dichloroethene and tetrachlorethene.

In addition, the detection limit for chloroform was raised due to rinse blank contamination in the following samples I9250 (2.7ug/L) and I9251 (4.7ug/L). The remaining VHO and VAO sample data can be used without further qualification.

5.02 December, 1989 Data Package

The second round of samples was collected between October 15 and 17, 1989 from sub-surface soil borings and ground water monitoring wells. One hundred thirteen aqueous and soil samples were collected and analyzed for the purpose of site characterization and assessing the risk posed by the site. The following discussion is a summary of the qualifications made to the sample data based on the data validation criteria outlined in Section 3. The specific QA/QC deficiencies resulting in the qualification of the sample data are contained in Section 4. Rejected sample data identified during the data validation should not be used for any qualitative or quantitative purposes. Approximated sample results or detection limits may be used for qualitative purposes or used for quantitative purposes with proper assumptions so as to not misrepresent the data.

5.02.1 Target Compound Inorganics

The following is a summary of the analytes that were rejected based on the data validation criteria outlined in Section 4:

Antimony: J3029, J3030.

Lead: J2612, J2615, J2617-23, J2625-27, J3068-69, J3071-85, J3087.

The following samples and analytes were approximated based on the data validation criteria outlined in Section 4:

Arsenic: J2619.

Cadmium: J2627.

Antimony: J2597, J3031.

Chromium: J2597, J2620.

Lead: J2602, J2604, J2606-09, J2611, J2616, J2624, J3029-31, J3086.

Selenium: J2597, J3030, J3031.

Zinc: J3029-31.

Copper: J3029-J3031.

The detection limits for the following analytes and samples were raised due to blank contamination:

Cadmium: J2597, J2622.

Chromium: J2619, J2621-23, J2627.

Arsenic: J2620.

Lead: J3042, J3045, J3058, J3070, J3086, J3090.

The detection limits for the following analytes and samples were changed based on the quarterly documentation of detections presented by the laboratory:

Selenium: J2597.

Lead: J2611.

Arsenic: J2619, J2621-23, J2627.

Chromium: J2621, J2623, J2627.

The remaining target compound list inorganics sample data can be used without further qualification.

5.02.2 Non-CLP Inorganics

Sample data were not rejected for the Non-CLP Inorganics which included, sulfate and chloride. The chloride results can be used without qualification. The only qualification of data made for sulfate sample results was to raise the detection limit of sample J2621 due to rinse blank contamination.

5.02.3 Purgeable Halocarbons and Aromatics

Sample data were not rejected for the purgeable halocarbons and aromatic analyses. Based on data validation criteria presented in Section 4, the detected compounds in samples J2628-30 were approximated. All other sample data can be used without further qualification.

Appendices



O'BRIEN & GERE

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APPENDIX A

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Q.C.

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9074

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.30			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3 N UT	u	N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	440000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

NS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19075

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	4.38			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.4 J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	200000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ND

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9076

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	6.50 J		W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	14.0 J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	2000000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

5

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: I9077

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.55J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	12.6J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	180000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

6

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19078

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.04 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.8 J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	240000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

MS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9079

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	16.()			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	219. J		E	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

2R2

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19080

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	18200.			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	10. <u>VJ</u>	<u>W</u>	<u>W</u>	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3 <u>L</u> <u>W</u>	<u>W</u>	<u>W, N</u>	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	5800000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

MD

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: I9081

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	1. (U)	μ		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	8.36 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	15 S. (U)	μ	W,N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	570000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

McCourt #9

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19082

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.08 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	31.0 J	µ	W,N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

LD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9083

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.87 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	24.3 J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	41000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Rinse Blank

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9084

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	3. <u>UJ</u>	μ	W	F
7440-38-2	Arsenic	1. <u>U</u>	μ		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1. <u>UJ</u>	μ		F
7440-70-2	Calcium				
7440-47-3	Chromium	2. <u>R</u>			P
7440-48-4	Cobalt				
7440-50-8	Copper	8. <u>U</u>	B	*	P
7439-89-6	Iron				
7439-92-1	Lead	2. <u>UJ</u>	μ	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	15. <u>J</u>	μ	N, *	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1000. <u>()</u>	μ		G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

3R

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9085

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	7.51J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	7.0J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	77000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

4R

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19086

Level (low/med): Low Date Received: 8-15-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	15. ()			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	11.1 J		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	190000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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NLI 001 0954

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Primary B

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): water Lab Sample ID: I9175

Level (low/med): low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	μ	*	P
7440-36-0	Antimony	108. R		*	P
7440-38-2	Arsenic	972. J		*	F
7440-39-3	Barium	30. R	B	*	P
7440-41-7	Beryllium	1.0	μ		P
7440-43-9	Cadmium	2.0	μ		P
7440-70-2	Calcium	274000. J		*	P
7440-47-3	Chromium	11. R		*	P
7440-48-4	Cobalt	8.80	B		P
7440-50-8	Copper	8. R	μ	*	P
7439-89-6	Iron	57200.		E	P
7439-92-1	Lead	254. J			F
7439-95-4	Magnesium	96900.			P
7439-96-5	Manganese	8620.		*	P
7439-97-6	Mercury	2.0	μ		CV
7440-02-0	Nickel	40.0 J		N, *	P
7440-09-7	Potassium	26500. J		*, E	P
7782-49-2	Selenium	10. R	μ	W, M, N	F
7440-22-4	Silver	2.0	μ		P
7440-23-5	Sodium	3330000. R		*	P
7440-28-0	Thallium	38.0 J	μ	W	F
7440-62-2	Vanadium	16.0	B		P
7440-66-6	Zinc	12. J	B	*	P
	Cyanide	10.0	μ		C

Color Before: yellow Clarity Before: cloudy Texture: _____

Color After: pale yellow Clarity After: clear Artifacts: _____

Comments:

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NLI 001 0955

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Primary A

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): water Lab Sample ID: I9176

Level (low/med): low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	<u>82500. R</u>		*	P
7440-36-0	Antimony	<u>82700. R</u>		*	P
7440-38-2	Arsenic	<u>218000. J</u>		*	F
7440-39-3	Barium	<u>492. R</u>		*	P
7440-41-7	Beryllium	<u>18.</u>			P
7440-43-9	Cadmium	<u>20. U</u>	μ		P
7440-70-2	Calcium	<u>61300. J</u>		*	P
7440-47-3	Chromium	<u>3470. R</u>		*	P
7440-48-4	Cobalt	<u>151.</u>			P
7440-50-8	Copper	<u>154. R</u>		*	P
7439-89-6	Iron	<u>271000.</u>		E	P
7439-92-1	Lead	<u>10. R</u>	μ	E	F
7439-95-4	Magnesium	<u>12400.</u>			P
7439-96-5	Manganese	<u>5570.</u>		*	P
7439-97-6	Mercury	<u>2. U</u>	μ		CV
7440-02-0	Nickel	<u>795. J</u>		N, *	P
7440-09-7	Potassium	<u>87900. J</u>		*, E	P
7782-49-2	Selenium	<u>70. R</u>		N, W	F
7440-22-4	Silver	<u>102.</u>			P
7440-23-5	Sodium	<u>34000000. R</u>		*	P
7440-28-0	Thallium	<u>50. U</u>	μ	W	F
7440-62-2	Vanadium	<u>40400.</u>			P
7440-66-6	Zinc	<u>752. J</u>		*	P
	Cyanide	<u>10. U</u>	μ		C
	TOC	<u>3400000. J</u>			G

Color Before: Black Clarity Before: Turbid Texture: -

Color After: Brown Clarity After: Cloudy Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Secondary B

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): water Lab Sample ID: I9177

Level (low/med): low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9630. R		*	P
7440-36-0	Antimony	63. R		*	P
7440-38-2	Arsenic	24. J		*	F
7440-39-3	Barium	15. R	B	*	P
7440-41-7	Beryllium	1.	B		P
7440-43-9	Cadmium	4.	B		P
7440-70-2	Calcium	201000. J		*	P
7440-47-3	Chromium	38. R		*	P
7440-48-4	Cobalt	35.	B		P
7440-50-8	Copper	42. R		*	P
7439-89-6	Iron	153000.		E	P
7439-92-1	Lead	10. R	µ	E	F
7439-95-4	Magnesium	84300.			P
7439-96-5	Manganese	7230.		*	P
7439-97-6	Mercury	0.2 U	µ		CV
7440-02-0	Nickel	72. J		N, *	P
7440-09-7	Potassium	14500. J		*, E	P
7782-49-2	Selenium	10. R	µ	W, N	F
7440-22-4	Silver	12. U			P
7440-23-5	Sodium	1260000. R		*	P
7440-28-0	Thallium	3050. J	µ		F
7440-62-2	Vanadium	7. U	B		P
7440-66-6	Zinc	1810. J		*	P
	Cyanide	10. U	µ		C
	TOC	77000. J			G

Color Before: yellow Clarity Before: turbid Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

PW-4

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9178

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.07 µ			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.07 µ	W,N		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

PW-5

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: I9179

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.05	µ		F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.11	µ	N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

1R

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9180

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.90 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	15 S. 1 J	W	W.N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	2300000. J			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

7 Well

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9181

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	23.			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper	12. U	B	*	P
7439-89-6	Iron				
7439-92-1	Lead	8. R	u	E	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	490000. J			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

12

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9182

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.05 μ			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.25 μ		W,N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1000.05 μ			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Rinse Blank

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19183

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	3.05	μ		F
7440-38-2	Arsenic	1.0	μ		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1. R	μ		F
7440-70-2	Calcium				
7440-47-3	Chromium	3.0			P
7440-48-4	Cobalt				
7440-50-8	Copper	5.0	μ		P
7439-89-6	Iron				
7439-92-1	Lead	3.205	μ	N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	15.0	μ		P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1000.05	μ		G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

PW-3

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9184

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0J	μ	W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3 1.10		N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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NLI 001 0964

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

PW-8

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9185

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0	u		F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.0	u	W.N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

secondary A

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9186

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	<u>5470. R</u>	*		P
7440-36-0	Antimony	<u>2340. R</u>	*		P
7440-38-2	Arsenic	<u>174000. J</u>	*		F
7440-39-3	Barium	<u>30. R</u>	B	*	P
7440-41-7	Beryllium	<u>10. U</u>	μ		P
7440-43-9	Cadmium	<u>20. U</u>	μ		P
7440-70-2	Calcium	<u>11900. J</u>		*	P
7440-47-3	Chromium	<u>185. R</u>		*	P
7440-48-4	Cobalt	<u>50. U</u>	μ		P
7440-50-8	Copper	<u>50. R</u>	μ	*	P
7439-89-6	Iron	<u>16300.</u>		E	P
7439-92-1	Lead	<u>10. R</u>	μ	E	F
7439-95-4	Magnesium	<u>2900.</u>			P
7439-96-5	Manganese	<u>1390.</u>		*	P
7439-97-6	Mercury	<u>2. U</u>	μ		CV
7440-02-0	Nickel	<u>688. J</u>		N, *	P
7440-09-7	Potassium	<u>102000. J</u>		*, E	P
7782-49-2	Selenium	<u>22. R</u>		N, W, M	F
7440-22-4	Silver	<u>28. U</u>			P
7440-23-5	Sodium	<u>33900000. R</u>		*	P
7440-28-0	Thallium	<u>50. UJ</u>	μ		F
7440-62-2	Vanadium	<u>32000.</u>			P
7440-66-6	Zinc	<u>919. J</u>		*	P
	Cyanide	<u>10. U</u>	μ		C
	TOC	<u>1600000. J</u>			G

Color Before: black Clarity Before: turbid Texture: -

Color After: brown Clarity After: cloudy Artifacts: -

Comments: _____

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

PW-2

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9187

Level (low/med): Low Date Received: 8-16-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1. u	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3 u	u	W.N	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

HS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19237

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	91.5 J		N	F
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	6.38 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	4400.			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	69000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

HD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19238

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	30. <u>UJ</u>	u	W.N	F
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	379.			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.4 <u>UJ</u>			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	650000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

OD

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9239

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0J	µ	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	121. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	21.0J	µ	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	980000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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NLI 001 0972

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

PD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9240

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.107		W,*	F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.167			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.807			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	740000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

ID

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: I9241

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.85 J			F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.7 U			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	65000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9242

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	49.			P
7440-70-2	Calcium				
7440-47-3	Chromium	8. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	62. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	2.8 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	64. J		N.*	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	270000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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NLI 001 0975

6

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

KS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9243

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	79.			P
7440-70-2	Calcium				
7440-47-3	Chromium	16. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	92. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	2400. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1300000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

KS Dup

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9244

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	78.			P
7440-70-2	Calcium				
7440-47-3	Chromium	15. P		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	91. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	2350. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1300000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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NLI 001 0977

8

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

KD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9245

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	113.			P
7440-70-2	Calcium				
7440-47-3	Chromium	81. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	152. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	19.2 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	2700000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

RS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19246

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0J	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	31.6U			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	12000.			G

Color Before: colorless Clarity Before: clear Texture: _____

Color After: pale yellow Clarity After: clear Artifacts: _____

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

RD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19247

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.05	μ	W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.10	μ		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	32000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

SS

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9248

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	5.2 J			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	15.4 J			F
7440-70-2	Calcium				
7440-47-3	Chromium	18. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2070. U	u		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	940000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments: _____

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

BR

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9249

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0 μ	μ		F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	4.9 μ			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	89000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

SD

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9250

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	963.			P
7440-70-2	Calcium				
7440-47-3	Chromium	4340. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	4680. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	8.4 UJ			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	2480. J		N.*	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver	37. U			P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	9690. J		*	P
	Cyanide				
	Sulfate	24000000.			G

Color Before: light brown Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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11

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

SD-Dup

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19251

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	899.			P
7440-70-2	Calcium				
7440-47-3	Chromium	4030. R		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	4360. R		*	P
7439-89-6	Iron				
7439-92-1	Lead	60. J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	2310. J		N.*	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver	34. (I)			P
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	9110. J		*	P
	Cyanide				
	Sulfate	24000000.			G

Color Before: light brown Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

CR2

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9252

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.05	µ	W	F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	5.9	µ		F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	3000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments: _____

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

PW6

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19253

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0 J	µ		F
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	13.0 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

PW10

Lab Name: OBG Laboratories, Inc.

Contract: 2844.014.517

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): Water

Lab Sample ID: 19254

Level (low/med): Low

Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>1. R</u>	<u>u</u>		<u>F</u>
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>103. (V)</u>			<u>P</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless

Clarity Before: clear

Texture: _____

Color After: pale yellow

Clarity After: clear

Artifacts: _____

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

PW7

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19255

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>X.R</u>	<u>u</u>		<u>F</u>
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>9.9 ()</u>			<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

11

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: 19256

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	2.6 J		W	F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	210.			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	105. UJ	μ	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	140. J		N, *	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	1800000.			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

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13

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

11-Dup

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9257

Level (low/med): Low Date Received: 8-17-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	1.0 J		W	F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	213.			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	105. UJ	µ	W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel	139. J		N,*	P
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

9R

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9380

Level (low/med): Low Date Received: 8-18-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>NR</u>	<u>u</u>		<u>F</u>
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>3 2.30</u>			<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	<u>2000. J</u>			<u>G</u>

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Well 10

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9381

Level (low/med): Low Date Received: 8-18-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/l

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	41.			P
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	6.6 UJ		W	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Sulfate	170000. J			G

Color Before: colorless Clarity Before: clear Texture: -

Color After: pale yellow Clarity After: clear Artifacts: -

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

Rinse Blank

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: I9385

Level (low/med): Low Date Received: 8-18-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/l}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	3.4 ()			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: colorless Clarity Before: clear Texture: _____

Color After: pale yellow Clarity After: clear Artifacts: _____

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

44A 0-3"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9412

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	203. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

44A 3"-6"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: I9413

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	31.7 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

44A 6"-12"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9414

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	23.1J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: CBG Laboratories, Inc. Contract: 2844.014.517

44A 12"-18"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9415

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	10.7 U			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

44 6"-12"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: 19416

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	50.7 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: rust Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

44 12"-18"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: I9417

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	68.6 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: orange Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

211 18"-24"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: 19418

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	22.3			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: colorless Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

211 24"-30"

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9419

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	45.3 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

218 18"-24"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9420

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2.91J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

218 24"-30"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: 19421

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	6.01 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

220 18"-24"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: I9422

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-3	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	15.9 ()			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

220 24"-30"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9423

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	51.5 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844 014 517

217 12"-18"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9424

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>2948. R</u>			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: DBG Laboratories, Inc. Contract: 2844.014.517

217 18"-24"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: 19425

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.640J		*	F
7440-38-2	Arsenic	2.78(J)			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	231. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.10J	µ	N	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

217 24"-30"

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: I9426

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	302. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

217 Dup.
12"-18"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9427

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>246. R</u>			<u>P</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

217 Dup.
18"-24"

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: 19428

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	3.00 (J)	u	W.*	F
7440-38-2	Arsenic	2.04 (J)			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	102. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.1 (J)	u	N	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

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INORGANIC ANALYSIS DATA SHEET

SITE

217 Dup
24"-30"

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: I9429

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	173. J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

213 18"-24"

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: I9430

Level (low/med): Low Date Received: 8-21-89

% Solids: 100.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	891.5			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: brown Clarity Before: - Texture: coarse

Color After: pale yellow Clarity After: - Artifacts: none

Comments:

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Laboratory Report

TOX Summary

[illegible]

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Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well 2R2
SAMPLE NO. I9080 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-18-89

	ppb		ppb
Benzene	<2.5 U	4-Chlorotoluene	<2.5 U
Trichloroethene	↓	Bromobenzene	↓
Toluene		sec-Butylbenzene	
Tetrachloroethene		1,3,5-Trimethylbenzene	
Ethylbenzene		4-Isopropyltoluene	
p-Xylene		1,2,4-Trimethylbenzene	
Chlorobenzene		1,4-Dichlorobenzene	
m-Xylene		1,3-Dichlorobenzene	
o-Xylene		n-Butylbenzene	
Isopropylbenzene		1,2-Dichlorobenzene	
Styrene		Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene	↓	1,2,3-Trichlorobenzene	↓

Comments: Elevated detection limit due to matrix interference



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well MD
SAMPLE NO. I9081 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-21-89

Benzene
Trichloroethene
Toluene
Tetrachloroethene
Ethylbenzene
p-Xylene
Chlorobenzene
m-Xylene
o-Xylene
Isopropylbenzene
Styrene
n-Propylbenzene
tert-Butylbenzene
2-Chlorotoluene

ppb
<0.5U



4-Chlorotoluene
Bromobenzene
sec-Butylbenzene
1,3,5-Trimethylbenzene
4-Isopropyltoluene
1,2,4-Trimethylbenzene
1,4-Dichlorobenzene
1,3-Dichlorobenzene
n-Butylbenzene
1,2-Dichlorobenzene
Hexachlorobutadiene
1,2,4-Trichlorobenzene
Naphthalene
1,2,3-Trichlorobenzene

ppb
<0.5U



Comments:



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Rinse Blank
SAMPLE NO. 19084 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-21-89

	ppb		ppb
Benzene	<0.5 U	4-Chlorotoluene	<0.5 U
Trichloroethene	↓	Bromobenzene	↓
Toluene		sec-Butylbenzene	
Tetrachloroethene		1,3,5-Trimethylbenzene	
Ethylbenzene		4-Isopropyltoluene	
p-Xylene		1,2,4-Trimethylbenzene	
Chlorobenzene		1,4-Dichlorobenzene	
m-Xylene		1,3-Dichlorobenzene	
o-Xylene		n-Butylbenzene	
Isopropylbenzene		1,2-Dichlorobenzene	
Styrene		Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene	↓	1,2,3-Trichlorobenzene	↓

Comments:

Authorized: Michael N. Pettit



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
QC Trip Blank
SAMPLE NO. 19087 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-21-89

	ppb		ppb
Benzene	<0.5 U	4-Chlorotoluene	<0.5 U
Trichloroethene	↓	Bromobenzene	↓
Toluene		sec-Butylbenzene	
Tetrachloroethene		1,3,5-Trimethylbenzene	
Ethylbenzene		4-Isopropyltoluene	
p-Xylene		1,2,4-Trimethylbenzene	
Chlorobenzene		1,4-Dichlorobenzene	
m-Xylene		1,3-Dichlorobenzene	
o-Xylene		n-Butylbenzene	
Isopropylbenzene		1,2-Dichlorobenzene	
Styrene		Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene	↓	1,2,3-Trichlorobenzene	↓

Comments:



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well SD
SAMPLE NO. 19250 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-21-89

	ppb		ppb
Benzene	<0.5 U	4-Chlorotoluene	<0.5 U
Trichloroethene	↓	Bromobenzene	↓
Toluene	1.3	sec-Butylbenzene	
Tetrachloroethene	<0.5 U	1,3,5-Trimethylbenzene	
Ethylbenzene	0.5	4-Isopropyltoluene	
p-Xylene	<0.5 U	1,2,4-Trimethylbenzene	
Chlorobenzene	<0.5 U	1,4-Dichlorobenzene	
m-Xylene	0.9 J	1,3-Dichlorobenzene	
o-Xylene	0.6 J	n-Butylbenzene	
Isopropylbenzene	<0.5 U	1,2-Dichlorobenzene	
Styrene	↓	Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene	↓	1,2,3-Trichlorobenzene	↓

Comments:

Authorized: Michael H. Pettrall

Date: October 16, 1989

NLI 001 1018



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well SD - Duplicate
SAMPLE NO. 19251 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-21-89

	ppb		ppb
Benzene	<0.5U	4-Chlorotoluene	<0.5U
Trichloroethene	↓	Bromobenzene	↓
Toluene	1.5	sec-Butylbenzene	
Tetrachloroethene	<0.5U	1,3,5-Trimethylbenzene	
Ethylbenzene	0.5	4-Isopropyltoluene	
p-Xylene	<0.5U	1,2,4-Trimethylbenzene	
Chlorobenzene	<0.5U	1,4-Dichlorobenzene	
m-Xylene	0.9 J	1,3-Dichlorobenzene	
o-Xylene	0.5 J	n-Butylbenzene	
Isopropylbenzene	<0.5U	1,2-Dichlorobenzene	
Styrene	↓	Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene	↓	1,2,3-Trichlorobenzene	↓

Comments:

Authorized: Michael N. Pettall

Date: October 16, 1989

NLI 001 1019



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well 11
SAMPLE NO. 19256 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-22-89

Benzen
Trichloroethene
Toluene
Tetrachloroethene
Ethylbenzene
p-Xylene
Chlorobenzene
m-Xylene
o-Xylene
Isopropylbenzene
Styrene
n-Propylbenzene
tert-Butylbenzene
2-Chlorotoluene

ppb
<5.0
↓
180. J
↓
<5.0
↓

4-Chlorotoluene
Bromobenzene
sec-Butylbenzene
1,3,5-Trimethylbenzene
4-Isopropyltoluene
1,2,4-Trimethylbenzene
1,4-Dichlorobenzene
1,3-Dichlorobenzene
n-Butylbenzene
1,2-Dichlorobenzene
Hexachlorobutadiene
1,2,4-Trichlorobenzene
Naphthalene
1,2,3-Trichlorobenzene

ppb
<5.0
↓

Comments:



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well 11 - Duplicate
SAMPLE NO. I9257 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-22-89

Benzene	ppb <5.0	4-Chlorotoluene	ppb <5.0
Trichloroethene		Bromobenzene	
Toluene		sec-Butylbenzene	
Tetrachloroethene	180. J	1,3,5-Trimethylbenzene	
Ethylbenzene	<5.0	4-Isopropyltoluene	
p-Xylene		1,2,4-Trimethylbenzene	
Chlorobenzene		1,4-Dichlorobenzene	
m-Xylene		1,3-Dichlorobenzene	
o-Xylene		n-Butylbenzene	
Isopropylbenzene		1,2-Dichlorobenzene	
Styrene		Hexachlorobutadiene	
n-Propylbenzene		1,2,4-Trichlorobenzene	
tert-Butylbenzene		Naphthalene	
2-Chlorotoluene		1,2,3-Trichlorobenzene	

Comments:



Volatile Organics Method 503

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Q C Trip Blank
SAMPLE NO. 19258 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-22-89

Benzene
Trichloroethene
Toluene
Tetrachloroethene
Ethylbenzene
p-Xylene
Chlorobenzene
m-Xylene
o-Xylene
Isopropylbenzene
Styrene
n-Propylbenzene
tert-Butylbenzene
2-Chlorotoluene

ppb
<0.5U



4-Chlorotoluene
Bromobenzene
sec-Butylbenzene
1,3,5-Trimethylbenzene
4-Isopropyltoluene
1,2,4-Trimethylbenzene
1,4-Dichlorobenzene
1,3-Dichlorobenzene
n-Butylbenzene
1,2-Dichlorobenzene
Hexachlorobutadiene
1,2,4-Trichlorobenzene
Naphthalene
1,2,3-Trichlorobenzene

ppb
<0.5U



Comments:

Authorized:

Michael R. Pettit



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well 2R2
SAMPLE NO. 19080 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<2.5U	Trichlorethene	<2.5U
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	
Vinyl chloride		1,1,2-Trichloroethane	
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene		1,2,3-Trichloropropane	
Bromochloromethane		1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane		Tetrachloroethene	
trans-1,2-Dichloroethene		Pentachloroethane	
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform		1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane		Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane		4-Chlorotoluene	
Carbon tetrachloride		bis-2-Chloroisopropyl ether	
Bromodichloromethane		1,3-Dichlorobenzene	
1,2-Dichloropropane		1,2-Dichlorobenzene	
2,2-Dichloropropane		1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments: Elevated detection limit due to matrix interference

NLI 001 1023



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well MD
SAMPLE NO. I9081 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-24-89

ppb
Chloromethane <0.5 U
Bromomethane
Dichlorodifluoromethane
Vinyl chloride
Chloroethane
Methylene chloride
Trichlorofluoromethane
1,1-Dichloroethene
Bromochloromethane
1,1-Dichloroethane
trans-1,2-Dichloroethene
cis-1,2-Dichloroethene
Chloroform
1,2-Dichloroethane
Dibromomethane
1,1,1-Trichloroethane
Carbon tetrachloride
Bromodichloromethane
1,2-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene

ppb
Trichlorethene <0.5 U
1,3-Dichloropropane
Dibromochloromethane
1,1,2-Trichloroethane
1,2-Dibromoethane
Bromoform
1,1,1,2-Tetrachloroethane
1,2,3-Trichloropropane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Pentachloroethane
Chlorobenzene
1,2-Dibromo-3-chloropropane
Bromobenzene
2-Chlorotoluene
4-Chlorotoluene
bis-2-Chloroisopropyl ether
1,3-Dichlorobenzene
1,2-Dichlorobenzene
1,4-Dichlorobenzene
trans-1,3-Dichloropropene
cis-1,3-Dichloropropene

Comments:

NLI 001 1024

Authorized: *Michael N. Petrucci*

Date: October 16, 1989



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Rinse Blank
SAMPLE NO. I9084 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<0.5 U	Trichlorethene	<0.5 U
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	3.0
Vinyl chloride		1,1,2-Trichloroethane	<0.5 U
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene		1,2,3-Trichloropropane	
Bromochloromethane		1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane		Tetrachloroethene	
trans-1,2-Dichloroethene		Pentachloroethane	
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform	12.6	1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane	<0.5 U	Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane		4-Chlorotoluene	
Carbon tetrachloride		bis-2-Chloroisopropyl ether	
Bromodichloromethane	6.3 J	1,3-Dichlorobenzene	
1,2-Dichloropropane	5.6	1,2-Dichlorobenzene	
2,2-Dichloropropane	<0.5 U	1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments:

NLI 001 1025



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
QC Trip Blank
SAMPLE NO. I9087 DATE COLLECTED 8-14-89 DATE REC'D. 8-15-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<0.50	Trichlorethene	<0.50
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	
Vinyl chloride		1,1,2-Trichloroethane	
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene		1,2,3-Trichloropropane	
Bromochloromethane		1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane		Tetrachloroethene	
trans-1,2-Dichloroethene		Pentachloroethane	
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform		1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane		Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane		4-Chlorotoluene	
Carbon tetrachloride		bis-2-Chloroisopropyl ether	
Bromodichloromethane		1,3-Dichlorobenzene	
1,2-Dichloropropane		1,2-Dichlorobenzene	
2,2-Dichloropropane		1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments:

NLI 001 1026



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well SD
SAMPLE NO. 19250 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<0.5 U	Trichlorethene	<0.5 U
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	
Vinyl chloride		1,1,2-Trichloroethane	
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene		1,2,3-Trichloropropane	
Bromochloromethane		1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane		Tetrachloroethene	
trans-1,2-Dichloroethene		Pentachloroethane	
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform	2.7 U	1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane	<0.5 U	Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane		4-Chlorotoluene	
Carbon tetrachloride		bis-2-Chloroisopropyl ether	
Bromodichloromethane		1,3-Dichlorobenzene	
1,2-Dichloropropane		1,2-Dichlorobenzene	
2,2-Dichloropropane		1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments:

NLI 001 1027



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well SD Duplicate
SAMPLE NO. 19251 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<0.5 U	Trichlorethene	<0.5 U
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	
Vinyl chloride		1,1,2-Trichloroethane	
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene		1,2,3-Trichloropropane	
Bromochloromethane		1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane		Tetrachloroethene	
trans-1,2,-Dichloroethene		Pentachloroethane	
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform	4.5 U	1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane	<0.5 U	Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane		4-Chlorotoluene	
Carbon tetrachloride		bis-2-Chloroisopropyl ether	
Bromodichloromethane		1,3-Dichlorobenzene	
1,2-Dichloropropane		1,2-Dichlorobenzene	
2,2-Dichloropropane		1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments:

NLI 001 1028



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well #11
SAMPLE NO. 19256 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-24-89

	ppb
Chloromethane	<50. U
Bromomethane	
Dichlorodifluoromethane	
Vinyl chloride	
Chloroethane	
Methylene chloride	
Trichlorofluoromethane	
1,1-Dichloroethene	170. J
Bromochloromethane	<50. U
1,1-Dichloroethane	74.
trans-1,2-Dichloroethene	<50. U
cis-1,2-Dichloroethene	
Chloroform	
1,2-Dichloroethane	
Dibromomethane	
1,1,1-Trichloroethane	4700.
Carbon tetrachloride	<500. U
Bromodichloromethane	<500. U
1,2-Dichloropropane	<50. U
2,2-Dichloropropane	
1,1-Dichloropropene	

	ppb
Trichlorethene	<50. U
1,3-Dichloropropane	
Dibromochloromethane	
1,1,2-Trichloroethane	
1,2-Dibromoethane	
Bromoform	
1,1,1,2-Tetrachloroethane	
1,2,3-Trichloropropane	
1,1,2,2-Tetrachloroethane	
Tetrachloroethene	74. J
Pentachloroethane	<50. U
Chlorobenzene	
1,2-Dibromo-3-chloropropane	
Bromobenzene	
2-Chlorotoluene	
4-Chlorotoluene	
bis-2-Chloroisopropyl ether	
1,3-Dichlorobenzene	
1,2-Dichlorobenzene	
1,4-Dichlorobenzene	
trans-1,3-Dichloropropene	
cis-1,3-Dichloropropene	

Comments:

NLI 001 1029



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
Well #11 Duplicate
SAMPLE NO. I9257 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-24-89

	ppb		ppb
Chloromethane	<50.0	Trichlorethene	<50.0
Bromomethane		1,3-Dichloropropane	
Dichlorodifluoromethane		Dibromochloromethane	
Vinyl chloride		1,1,2-Trichloroethane	
Chloroethane		1,2-Dibromoethane	
Methylene chloride		Bromoform	
Trichlorofluoromethane		1,1,1,2-Tetrachloroethane	
1,1-Dichloroethene	150. J	1,2,3-Trichloropropane	
Bromochloromethane	<50.0	1,1,2,2-Tetrachloroethane	
1,1-Dichloroethane	70.	Tetrachloroethene	69. J
trans-1,2-Dichloroethene	<50.0	Pentachloroethane	<50.0
cis-1,2-Dichloroethene		Chlorobenzene	
Chloroform		1,2-Dibromo-3-chloropropane	
1,2-Dichloroethane		Bromobenzene	
Dibromomethane		2-Chlorotoluene	
1,1,1-Trichloroethane	4700.	4-Chlorotoluene	
Carbon tetrachloride	<500.0	bis-2-Chloroisopropyl ether	
Bromodichloromethane	<500.0	1,3-Dichlorobenzene	
1,2-Dichloropropane	<50.0	1,2-Dichlorobenzene	
2,2-Dichloropropane		1,4-Dichlorobenzene	
1,1-Dichloropropene		trans-1,3-Dichloropropene	
		cis-1,3-Dichloropropene	

Comments:

NLI 001 1030

Authorized: Michael N. Pettrelli

Date: October 16, 1989



Volatile Organics Method 502

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ - Water
QC Trip Blank
SAMPLE NO. I9258 DATE COLLECTED 8-16-89 DATE REC'D. 8-17-89 DATE ANALYZED 8-24-89

Chloromethane
Bromomethane
Dichlorodifluoromethane
Vinyl chloride
Chloroethane
Methylene chloride
Trichlorofluoromethane
1,1-Dichloroethene
Bromochloromethane
1,1-Dichloroethane
trans-1,2-Dichloroethene
cis-1,2-Dichloroethene
Chloroform
1,2-Dichloroethane
Dibromomethane
1,1,1-Trichloroethane
Carbon tetrachloride
Bromodichloromethane
1,2-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene

ppb
<0.5 U



Trichlorethene
1,3-Dichloropropane
Dibromochloromethane
1,1,2-Trichloroethane
1,2-Dibromoethane
Bromoform
1,1,1,2-Tetrachloroethane
1,2,3-Trichloropropane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Pentachloroethane
Chlorobenzene
1,2-Dibromo-3-chloropropane
Bromobenzene
2-Chlorotoluene
4-Chlorotoluene
bis-2-Chloroisopropyl ether
1,3-Dichlorobenzene
1,2-Dichlorobenzene
1,4-Dichlorobenzene
trans-1,3-Dichloropropene
cis-1,3-Dichloropropene

ppb
<0.5 U



Comments:

NLI 001 1031

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SHIPLE NO.

Primary B
19175DL

Lab Name: OBG Laboratories, Inc.

Contract: 2844.014.F17

Code: -

Case No.: -

SAS No.: -

SDG No.: -

Matrix: (soil/water) WATER

Lab Sample ID: 19175DL

Sample wt/vol: 5 (g/mL) mL

Lab File ID: 003011

Sl: (low/med) LOW

Date Received: 08/16/89

Moisture: not dec.100

Date Analyzed: 08/24/89

Amn: (pack/cap) PACK

Dilution Factor: 10

CAS NO:	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg; ug/L	Q
74-87-3	Chloromethane	100.0	10 D
74-83-9	Bromomethane	100.0	10 D
75-01-4	Vinyl Chloride	100.0	10 D
75-00-3	Chloroethane	100.0	10 D
75-09-2	Methylene Chloride	50 100.0	10 D
67-64-1	Acetone	100.0	10 D
75-15-0	Carbon Disulfide	50.0	10 D
75-35-4	1,1-Dichloroethene	50.0	10 D
75-34-3	1,1-Dichloroethane	50.0	10 D
540-59-0	1,2-Dichloroethene (total)	50.0	10 D
67-66-3	Chloroform	50.0	10 D
107-02-2	1,2-Dichloroethane	50.0	10 D
78-93-3	2-Butanone	100.0	10 D
71-55-6	1,1,1-Trichloroethane	50.0	10 D
56-23-5	Carbon Tetrachloride	50.0	10 D
108-05-4	Vinyl Acetate	100.0	10 D
75-27-4	Bromodichloromethane	50.0	10 D
78-87-5	1,2-Dichloropropane	50.0	10 D
10061-01-5	cis-1,3-Dichloropropene	50.0	10 D
79-01-6	Trichloroethene	50.0	10 D
124-48-1	Dibromochloromethane	50.0	10 D
79-00-5	1,1,2-Trichloroethane	50.0	10 D
71-43-2	Benzene	50.0	10 D
10061-02-6	trans-1,3-Dichloropropene	50.0	10 D
75-25-2	Bromoform	50.0	10 D
108-10-1	4-Methyl-2-pentanone	100.0	10 D
591-78-6	2-Hexanone	100.0	10 D
127-18-4	Tetrachloroethene	50.0	10 D
79-34-5	1,1,2,2-Tetrachloroethane	50.0	10 D
108-88-3	Toluene	50.0	10 D
108-90-7	Chlorobenzene	50.0	10 D
100-41-4	Ethylbenzene	50.0	10 D
100-42-5	Styrene	50.0	10 D
133-02-7	Xylene (total)	50.0	10 D

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: OBG LABORATORIES, INC.

Contract: 2844 ON 57

I9175D

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: I9175D

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: 7V3011

Level: (low/med) Low

Date Received: 08/14/89

* Moisture: not dec. 100

Date Analyzed: 08/21/89

Column: (pack/cap) 1ack

Dilution Factor: 10

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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NLI 001 1033

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PER BLANK
19188

Name: OBG Laboratories, Inc.

Contract: 2844.014.517

Lab Code: -

Case No.: -

SAS No.: -

SDG No.: -

Matrix: (soil/water) WATER

Lab Sample ID: 19188

Sample wt/vol: 5 (g/mL) mL

Lab File ID: 103014

Level: (low/med) LOW

Date Received: 08/16/89

Moisture: not dec.100

Date Analyzed: 08/24/89

Column: (pack/cap) PACK

Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L 0

74-87-3	Chloromethane	10.0	U
74-83-9	Bromomethane	10.0	U
75-01-4	Vinyl Chloride	10.0	U
75-00-3	Chloroethane	10.0	U
75-09-2	Methylene Chloride	5.0	U
67-64-1	Acetone	3.0	U
75-15-0	Carbon Disulfide	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
540-59-0	1,2-Dichloroethene (total)	5.0	U
67-66-3	Chloroform	5.0	U
107-02-2	1,2-Dichloroethane	5.0	U
78-93-3	2-Butanone	10.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
108-05-4	Vinyl Acetate	10.0	U
75-27-4	Bromodichloromethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
79-01-6	Trichloroethene	5.0	U
124-48-1	Dibromochloromethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
71-43-2	Benzene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
75-25-2	Bromoform	5.0	U
108-10-1	4-Methyl-2-pentanone	10.0	U
591-78-6	2-Hexanone	10.0	U
127-18-4	Tetrachloroethene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
108-88-3	Toluene	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
133-02-7	Xylene (total)	5.0	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: OBG LABORATORIES, INC.

Contract: 2844.014.517

I9188

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: I9188

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: 2V3014

Level: (low/med) LOW

Date Received: 08/16/89

% Moisture: not dec. 100

Date Analyzed: 08/24/89

Column: (pack/cap) Pack

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Secondary B
191770L

Name: OBG Laboratories, Inc.

Contract: 2844.014.517

ID Code: -

Case No.: -

SAS No.: -

SDG No.: -

Matrix: (soil/water) WATER

Lab Sample ID: 191770L

Sample Wt/Vol: 5 (g/mL) mL

Lab File ID: 103012

Rel: (low/med) LOW

Date Received: 08/16/99

Moisture: not dec.100

Date Analyzed: 08/24/99

Column: (pack/cap) PACK

Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	0
74-87-3	Chloromethane	20.0	10.0
74-83-9	Bromomethane	20.0	10.0
75-01-4	Vinyl Chloride	20.0	10.0
75-00-3	Chloroethane	20.0	10.0
75-09-2	Methylene Chloride	10.0	10.0
67-64-1	Acetone	20.0	10.0
75-15-0	Carbon Disulfide	10.0	10.0
75-35-4	1,1-Dichloroethene	10.0	10.0
75-34-3	1,1-Dichloroethane	10.0	10.0
540-59-0	1,2-Dichloroethene (total)	10.0	10.0
67-66-3	Chloroform	10.0	10.0
107-02-2	1,2-Dichloroethane	10.0	10.0
78-93-3	2-Butanone	20.0	10.0
71-55-6	1,1,1-Trichloroethane	10.0	10.0
56-23-5	Carbon Tetrachloride	10.0	10.0
108-05-4	Vinyl Acetate	20.0	10.0
75-27-4	Bromodichloromethane	10.0	10.0
78-87-5	1,2-Dichloropropane	10.0	10.0
10061-01-5	cis-1,3-Dichloropropene	10.0	10.0
79-01-6	Trichloroethene	10.0	10.0
124-48-1	Dibromochloromethane	10.0	10.0
79-00-5	1,1,2-Trichloroethane	10.0	10.0
71-43-2	Benzene	10.0	10.0
10061-02-6	trans-1,3-Dichloropropene	10.0	10.0
75-25-2	Bromoform	10.0	10.0
108-10-1	4-Methyl-2-pentanone	20.0	10.0
591-78-6	2-Hexanone	20.0	10.0
127-18-4	Tetrachloroethene	10.0	10.0
79-34-5	1,1,2,2-Tetrachloroethane	10.0	10.0
108-88-3	Toluene	10.0	10.0
108-90-7	Chlorobenzene	10.0	10.0
100-41-4	Ethylbenzene	10.0	10.0
100-42-5	Styrene	10.0	10.0
133-02-7	Xylene (total)	10.0	10.0

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

I9177D

Lab Name: OBG LABORATORIES, INC.

Contract: 2844.04.57

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: I9177D

Sample wt/vol: 5.0 (g/mL) ml

Lab File ID: 21/3012

Level: (low/med) LOW

Date Received: 08/16/89

% Moisture: not dec. 100

Date Analyzed: 08/24/89

Column: (pack/cap) PACK

Dilution Factor: 2

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

PRIMARY B

Lab Name: CBG Laboratories Inc.

Contract: 2884.014.517

Lab Code: ----- Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: (soil, water) WATER

Lab Sample ID: 19175RE

Sample wt/vol: 540 (g/mL) mL

Lab File ID: 130928

Level: (low/med) LOW

Date Received: 10/16/89

Moisture: not dec. _____ dec. _____

Date Extracted: 08.21/89

Extraction: (Sepf/Cont/Sonc) SEPF

Date Analyzed: 9/22/89

PC Cleanup: (Y/N) N pH: ---

Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	19. R	U
111-44-4	bis(2-Chloroethyl) Ether	19. U	U
95-57-8	2-Chlorophenol	19. R	U
541-73-1	1,3-Dichlorobenzene	19. U	U
106-46-7	1,4-Dichlorobenzene	19. U	U
100-51-6	Benzyl alcohol	19. U	U
95-50-1	1,2-Dichlorobenzene	19. U	U
95-48-7	2-Methylphenol	19. R	U
39638-32-9	bis(2-chloroisopropyl) ether	19. U	U
106-44-5	4-Methylphenol	19. R	U
631-64-7	N-Nitroso-Di-n-propylamine	19. U	U
67-72-1	Hexachloroethane	19. U	U
98-95-3	Nitrobenzene	19. U	U
78-59-1	Isophorone	19. U	U
88-75-5	2-Nitrophenol	19. R	U
105-67-3	2,4-Dimethylphenol	19. R	U
65-85-0	Benzoic acid	93. U	U
111-31-1	bis(2-Chloroethoxy)methane	19. U	U
120-53-2	2,4-Dichlorophenol	19. R	U
120-82-1	1,2,4-Trichlorobenzene	19. U	U
91-20-3	Naphthalene	19. U	U
106-47-8	4-Chloroaniline	19. U	U
87-68-3	Hexachlorobutadiene	19. U	U
59-50-7	4-Chloro-3-methylphenol	19. R	U
91-57-6	2-Methylnaphthalene	19. U	U
77-47-4	Hexachlorocyclopentadiene	19. U	U
88-06-2	2,4,6-Trichlorophenol	19. R	U
95-35-4	2,4,5-Trichlorophenol	93. R	U
91-58-7	2-Chloronaphthalene	19. U	U
88-74-4	2-Nitroaniline	93. U	U
131-11-3	Dimethylphthalate	19. U	U
208-26-3	Acenaphthylene	19. U	U
606-20-2	2,6-Dinitrotoluene	19. U	U

FORM I SV-1

1/87 Rev.

NLI 001 1038

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

PRIMARY B
19175

Lab Name: CSG Laboratories Inc.

Contract: 2984.014.517

Lab Code: ----- Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: (soil/water) WATER

Lab Sample ID: 19175RE

Sample wt/vol: 540 (g/mL) mL

Lab File ID: 280988

Level: (low/med) LOW

Date Received: 08/16/89

Moisture: not dec. _____ dec. _____

Date Extracted: 08/21/89

Extraction: (Sepf/Cont/Sonc) SEPF

Date Analyzed: 9/02/89

PC Cleanup: (Y/N) N pH: ---

Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2-----	3-Nitroaniline_____	93.U	U
83-32-9-----	Acenaphthene_____	19.U	U
51-28-5-----	2,4-Dinitrophenol_____	93.R	U
100-02-7-----	4-Nitrophenol_____	93.R	U
132-64-3-----	Dibenzofuran_____	19.U	U
121-14-2-----	2,4-Dinitrotoluene_____	19.U	U
84-66-2-----	Diethylphthalate_____	19.U	U
7005-72-3-----	4-Chlorophenyl-phenylether_____	19.U	U
86-73-7-----	Fluorene_____	19.U	U
100-01-6-----	4-Nitroaniline_____	93.U	U
534-52-1-----	4,6-Dinitro-2-methylphenol_____	93.R	U
86-30-6-----	N-Nitrosodiphenylamine (1)_____	19.U	U
101-56-3-----	4-Bromophenyl-phenylether_____	19.U	U
119-74-1-----	Hexachlorobenzene_____	19.U	U
87-86-3-----	Pentachlorophenol_____	93.R	U
85-01-8-----	Phenanthrene_____	19.U	U
120-12-7-----	Anthracene_____	19.U	U
84-74-2-----	Di-n-butylphthalate_____	19.U	U
206-44-0-----	Fluoranthene_____	19.U	U
129-00-0-----	Pyrene_____	19.U	U
85-68-7-----	Butylbenzylphthalate_____	19.U	U
91-94-1-----	3,3'-Dichlorobenzidine_____	37.U	U
56-55-3-----	Benzo(a)anthracene_____	19.U	U
218-01-3-----	Chrysene_____	19.U	U
117-81-7-----	bis(2-Ethylhexyl)phthalate_____	19.U	JE
117-84-0-----	Di-n-octylphthalate_____	19.U	U
205-99-2-----	Benzo(b)fluoranthene_____	19.U	U
207-08-9-----	Benzo(k)fluoranthene_____	19.U	U
50-32-8-----	Benzo(a)pyrene_____	19.U	U
193-39-5-----	Indeno(1,2,3-cd)pyrene_____	19.U	U
53-70-3-----	Dibenzo(a,h)anthracene_____	19.U	U
191-24-2-----	Benzo(g,h,i)perylene_____	19.U	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2

1/87 Rev.

NLI 001 1039

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Primary B
I9175

Lab Name: OBG LABORATORIES, INC.

Contract: 2884.014.511

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) (WATER)

Lab Sample ID: I9175

Sample wt/Vol: 540 (g/mL) ML

Lab File ID: 280971

Level: (low/med) Low

Date Received: 08/16/89

% Moisture: not dec. _____ dec. _____

Date Extracted: 08/21/89

Extraction: (SepF/Cont/Sonc) SEP F

Date Analyzed: 09/01/89

GC Cleanup: (Y/N) N pH: -

Dilution Factor: 1

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.70	10 J	J A
2.	"	4.91	120 J	A
3.	"	6.74	23 J	A
4.	"	9.40	10 J	
5.	"	10.78	16 J	
6. 719222	2,5-CYCLOHEXADIENE-1,4-DIOL	16.14	10 J	
7.	UNKNOWN	16.51	12 J	
8.	"	17.35	9 J	
9.	"	19.67	9 J	
10.	"	21.05	9 J	
11.	"	22.35	8 J	
12.	"	23.53	12 J	
13.	UNKNOWN HYDROCARBON	23.61	22 J	
14.	UNKNOWN	24.36	60 J	↓
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Secondary D
19177

Lab Name: OEG Laboratories Inc.

Contract: 1684.014.517

Lab Code: -----

Case No.: -----

SAS No.: -----

SDG No.: -----

Matrix: (soil/water) WATER

Lab Sample ID: 191772E

Sample wt/vol: 810 (g/mL) mL

Lab File ID: >80691

Level: (low/med) LOW

Date Received: 08/16/89

Moisture: not dec. _____ dec. _____

Date Extracted: 08/21/89

Extraction: (Sepf/Cont/Sonc) SEPF

Date Analyzed: 9/12/89

PC Cleanup: (Y/N) N pH: ---

Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
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108-95-2-----	Phenol	12. R	U
111-44-4-----	bis(2-Chloroethyl)Ether	12. U	U
95-57-8-----	2-Chlorophenol	12. R	U
541-73-1-----	1,3-Dichlorobenzene	12. U	U
106-46-7-----	1,4-Dichlorobenzene	12. U	U
100-51-6-----	Benzyl alcohol	12. U	U
95-50-1-----	1,2-Dichlorobenzene	12. U	U
95-48-7-----	2-Methylphenol	12. R	U
39638-32-9-----	bis(2-chloroisopropyl)ether	12. U	U
106-44-5-----	4-Methylphenol	12. R	U
621-64-7-----	N-Nitroso-Di-n-propylamine	12. U	U
67-72-1-----	Hexachloroethane	12. U	U
98-95-3-----	Nitrobenzene	12. U	U
78-59-1-----	Isophorone	12. U	U
88-75-5-----	2-Nitrophenol	12. R	U
105-67-9-----	2,4-Dimethylphenol	12. R	U
65-85-0-----	Benzoic acid	62. U	U
111-91-1-----	bis(2-Chloroethoxy)methane	12. U	U
120-83-2-----	2,4-Dichlorophenol	12. R	U
120-82-1-----	1,2,4-Trichlorobenzene	12. U	U
91-20-3-----	Naphthalene	12. U	U
106-47-3-----	4-Chloroaniline	12. U	U
87-68-3-----	Hexachlorobutadiene	12. U	U
59-50-7-----	4-Chloro-3-methylphenol	12. R	U
91-57-6-----	2-Methylnaphthalene	12. U	U
77-47-4-----	Hexachlorocyclopentadiene	12. U	U
88-06-2-----	2,4,6-Trichlorophenol	12. R	U
95-95-4-----	2,4,5-Trichlorophenol	12. R	U
91-58-7-----	2-Chloronaphthalene	12. U	U
88-74-4-----	Nitroaniline	62. U	U
131-11-3-----	Dimethylphthalate	12. U	U
208-96-4-----	Acenaphthylene	12. U	U
606-20-2-----	2,6-Dinitrotoluene	12. U	U

FORM I SV-1

1/87 Rev.

NLI 001 1041

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Secondary
I9177

Lab Name: CBG Laboratories Inc.

Contract: 2884.014.517

Lab Code: ----- Case No.: ----- SAS No.: ----- SDG No.: -----

Matrix: (soil/water) WATER

Lab Sample ID: I9177RE

Sample wt/vol: 810 (g/mL) mL

Lab File ID: >B0991

Level: (low/med) LOW

Date Received: 08/16/89

Moisture: not dec. _____ dec. _____

Date Extracted: 08/21/89

Extraction: (Sepf/Cont/Sonc) SEPF

Date Analyzed: 9/02/89

PC Cleanup: (Y/N) N pH: ---

Dilution Factor: 1.00000

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
99-09-2	3-Nitroaniline	62.0	U	
83-32-9	Acenaphthene	12.0	U	
51-28-5	2,4-Dinitrophenol	82.0	U	
100-02-7	4-Nitrophenol	82.0	U	
131-84-9	Dibenzofuran	12.0	U	
121-14-2	2,4-Dinitrotoluene	12.0	U	
84-66-2	Diethylphthalate	12.0	U	
7005-72-3	4-Chlorophenyl-phenylether	12.0	U	
86-73-7	Fluorene	12.0	U	
100-01-6	4-Nitroaniline	62.0	U	
534-52-1	4,6-Dinitro-2-methylphenol	82.0	U	
86-30-6	N-Nitrosodiphenylamine (1)	12.0	U	
101-55-3	4-Bromophenyl-phenylether	12.0	U	
118-74-1	Hexachlorobenzene	12.0	U	
87-86-5	Pentachlorophenol	82.0	U	
85-01-8	Phenanthrene	12.0	U	
120-12-7	Anthracene	12.0	U	
84-74-2	Di-n-butylphthalate	12.0	U	
206-44-0	Fluoranthene	12.0	U	
129-00-0	Pyrene	12.0	U	
85-68-7	Butylbenzylphthalate	12.0	U	
91-94-1	3,3'-Dichlorobenzidine	25.0	U	
56-55-3	Benzo(a)anthracene	12.0	U	
218-01-9	Chrysene	12.0	U	
117-81-7	bis(2-Ethylhexyl)phthalate	12.0	U	
117-84-0	Di-n-octylphthalate	12.0	U	
205-99-2	Benzo(b)fluoranthene	12.0	U	
207-08-9	Benzo(k)fluoranthene	12.0	U	
50-32-8	Benzo(a)pyrene	12.0	U	
193-39-5	Indeno(1,2,3-cd)pyrene	12.0	U	
53-70-3	Dibenzo(a,h)anthracene	12.0	U	
191-24-2	Benzo(g,h,i)perylene	12.0	U	

(1) - Cannot be separated from Diphenylamine

FORM I SV-2

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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Secondary B
I9177

Lab Name: OBG LABORATORIES, INC.

Contract: 2884.014.511

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: I9177

Sample wt/Vol: 810 (g/mL) ML

Lab File ID: >80974

Vel: (low/med) Low

Date Received: 08/16/89

% Moisture: not dec. dec.

Date Extracted: 08/21/89

Extraction: (SepE/Cont/Sonc) SEPF

Date Analyzed: 09/01/89

Cleanup: (Y/N) N pH: -

Dilution Factor: 1

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.71	6 J	J A
2.	"	4.90	38 J	A
3.	"	6.75	22 J	A
4.	"	8.06	32 J	
5.	"	8.63	6 J	
6.	104767 1-HEXANOL, 2-ETHYL -	9.23	11 J	
7.	UNKNOWN	9.42	6 J	
8.	"	9.86	7 J	
9.	"	10.79	11 J	
10.	719222 2,5-CYCLOHEXADIENE-1,4-DIOL	16.14	7 J	
11.	UNKNOWN	17.69	7 J	
12.	"	23.52	7 J	
13.	UNKNOWN HYDROCARBON	23.61	18 J	V
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Primary B

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) Water Lab Sample ID: 19175

Sample wt/vol: 800 (g/mL) mL Lab File ID: _____

Level: (low/med) Low Date Received: 8-16-89

% Moisture: not dec. _____ dec. _____ Date Extracted: 8-21-89

Extraction: (Sep F/Cont/Sonc) SepF Date Analyzed: 8-25-89

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CONCENTRATION UNITS:

CAS NO. COMPOUND (µg/L or µg/Kg) µg/L Q

319-84-6-----	alpha-BHC	0.05 U	U
319-85-7-----	beta-BHC		
319-86-8-----	delta-BHC		
58-89-9-----	gamma-BHC (Lindane)		
76-44-8-----	Heptachlor		
309-00-2-----	Aldrin		
1024-57-3-----	Heptachlor epoxide		
959-98-8-----	Endosulfan I		
60-57-1-----	Dieldrin	↓	
72-55-9-----	4,4'-DDE	0.10 U	
72-20-8-----	Endrin		
33213-65-9-----	Endosulfan II		
72-54-8-----	4,4'-DDD		
1031-07-8-----	Endosulfan sulfate		
50-29-3-----	4,4'-DDT	↓	
72-43-5-----	Methoxychlor	0.50 U	
53494-70-5-----	Endrin ketone	0.10 U	
5103-71-9-----	alpha-Chlordane	0.50 U	
5103-74-2-----	gamma-Chlordane	0.50 U	
8001-35-2-----	Toxaphene	1.0 U	
12674-11-2-----	Aroclor-1016	0.50 U	
11104-28-2-----	Aroclor-1221		
11141-16-5-----	Aroclor-1232		
53469-21-9-----	Aroclor-1242		
12672-29-6-----	Aroclor-1248	↓	
11097-69-1-----	Aroclor-1254	1.0 U	
11096-82-5-----	Aroclor-1260	1.0 U	↓

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APPENDIX B

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-9

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2597

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	79.5 J			F
7440-38-2	Arsenic	60.7			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	14.0 U		*	P
7440-70-2	Calcium				
7440-47-3	Chromium	16.0 J		*	P
7440-48-4	Cobalt				
7440-50-8	Copper	39.0			P
7439-89-6	Iron				
7439-92-1	Lead	1270.0			P
7439-95-4	Magnesium				.
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	20.0 18.00 J u	u	N	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	162.2			P
	Cyanide				
	Tin	800.0 U u	u		P

Color Before: Brown Clarity Before: Cloudy Texture: _____

Color After: Pale Yellow Clarity After: Clear Artifacts: _____

Comments:

SE was analyzed at a 1:10 dilution.

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000003

NLI 001 1046

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-8

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2600Level (low/med): Low Date Received: 10-19-89% Solids: 0.0Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	414.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000004

NLI 001 1047

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-5

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2601

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	313.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Lt. Brown Clarity Before: Cloudy Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1048

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-4

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2602

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	63.7 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1049

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-7

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2603

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	408.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Lt. Brown Clarity Before: Cloudy Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1050

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-6

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2604

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	78.0 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1051

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-11

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2605

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	190.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000009

NLI 001 1052

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-1

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2606

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	48.8 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1053

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-2

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: J2607

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	69.4 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000011

NLI 001 1054

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-3

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2608

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	85.3 J			F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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NLI 001 1055

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-6

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2609

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	101.0 J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000013

NLI 001 1056

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-16

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2610

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	244.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

Form I - IN

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000014

NLI 001 1057

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-1

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2611

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>20.0 to 0.03</u>	<u>u</u>		<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments: PB was analyzed at a 1:10 dilution.

Form I - IN

7/87

000015

NLI 001 1058

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-2

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: J2612

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>16.4 R</u>		<u>SN*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

Form I - IN

7/87

000016

NLI 001 1059

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-5

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2615

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>100.0 J</u>		<u>N*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Lt. Brown Clarity Before: Cloudy Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

PB was analyzed at a 1:5 dilution.

Form I - IN

7/87

000017

NLI 001 1060

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-17

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2616

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	418.0J			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

Form I - IN

7/87

000018

NLI 001 1061

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-7

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2617

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>12.0 R</u>		SN*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

Form I - IN

7/87

000019

NLI 001 1062

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-3

Lab Name: OBG Laboratories, Inc.

Contract: 2844.014.517

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): Water

Lab Sample ID: J2618

Level (low/med): Low

Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>31.5 R</u>		<u>SN*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Brown

Clarity Before: Cloudy

Texture: _____

Color After: Pale Yellow

Clarity After: Clear

Artifacts: _____

Comments:

Form I - IN

7/87

000020

NLI 001 1063

1
INORGANIC ANALYSIS DATA SHEET

SITE

Well 16

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2619

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.0 <u>1.0</u>	u	W	F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>1.0</u>	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	<u>7.0</u>	B		P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	5.0 <u>R</u>		WN*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Brown Clarity Before: Cloudy Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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7/87

000021

NLI 001 1064

1
INORGANIC ANALYSIS DATA SHEET

SITE

Well 17

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2620

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	5.6 U	B		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.0 U	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	46.0 J			P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	8.4 R		N*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Lt. Brown Clarity Before: Cloudy Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000022

NLI 001 1065

1
INORGANIC ANALYSIS DATA SHEET

SITE

Well 13

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: J2621

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.00 1.0	u		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.00	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	5.0 3.00	B		P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	8.20		N*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000023

NLI 001 1066

1
INORGANIC ANALYSIS DATA SHEET

SITE

Well 14

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2622

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	3.00 1.0	u		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	1.1U	B	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	5.0U	B		P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1.0R	u	N*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: -

Color After: Pale Yellow Clarity After: Clear Artifacts: -

Comments:

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000024

NLI 001 1067

1
INORGANIC ANALYSIS DATA SHEET

SITE

Well 15

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2623

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	<u>3.00</u> 1.0	u		F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>1.00</u>	u	W	F
7440-70-2	Calcium				
7440-47-3	Chromium	<u>5.0</u> 2.0	B		P
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>2.0</u> 1.0	u	N*	F
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Pale Yellow Clarity After: Clear Artifacts: _____

Comments:

Form I - IN

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000025

NLI 001 1068

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-12

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2624

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2200.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Brown Clarity Before: Cloudy Texture: _____

Color After: Pale Yellow Clarity After: Clear Artifacts: _____

Comments:

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7/87

000026

NLI 001 1069

1
INORGANIC ANALYSIS DATA SHEET

SITE

Rinse
Blk Water

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2625

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): $\mu\text{g/L}$

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>1.6</u>	<u>B</u>	<u>N*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Pale Yellow Clarity After: Clear Artifacts: _____

Comments:

Form I - IN

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000027

NLI 001 1070

1
INORGANIC ANALYSIS DATA SHEET

SITE

Rinse
Blk. SED

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Water Lab Sample ID: J2626

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>R 1.2</u>	<u>B</u>	<u>N*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture: _____

Color After: Pale Yellow Clarity After: Clear Artifacts: _____

Comments:

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000028

NLI 001 1071

1
INORGANIC ANALYSIS DATA SHEET

SITE

Field
Blank

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Water Lab Sample ID: J2627

Level (low/med): Low Date Received: 10-19-89

% Solids: 0.0

Concentration Units (µg/L or mg/kg dry weight): µg/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic	<u>3.0 V 1.0</u>	<u>u</u>		<u>F</u>
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>1.5 U</u>	<u>B</u>	<u>W</u>	<u>F</u>
7440-70-2	Calcium				
7440-47-3	Chromium	<u>5.0 V 1.0</u>	<u>B</u>		<u>P</u>
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>1.5 R</u>	<u>B</u>	<u>N*</u>	<u>F</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				
	Tin				

Color Before: Colorless Clarity Before: Clear Texture:

Color After: Pale Yellow Clarity After: Clear Artifacts:

Comments:

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000029

NLI 001 1072

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-5(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3025

Level (low/med): Low Date Received: 10-31-89

% Solids: 31.5

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1350.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000030

NLI 001 1073

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-5(3-6)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3026Level (low/med): LowDate Received: 10-31-89% Solids: 37.7Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1000.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000031

NLI 001 1074

INORGANIC ANALYSIS DATA SHEET

SITE

WS-5(6-12)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3027

Level (low/med): Low Date Received: 10-31-89

% Solids: 43.6

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	72.5		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000032

NLI 001 1075

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-5(12-14)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3028Level (low/med): LowDate Received: 10-31-89% Solids: 66.5Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	18.5		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000033

NLI 001 1076

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-9 (0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3029

Level (low/med): Low Date Received: 10-31-89

% Solids: 20.3

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	<u>477.8K</u>		*N	P
7440-38-2	Arsenic	<u>280.3</u>			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	<u>21.2</u>			P
7440-70-2	Calcium				
7440-47-3	Chromium	<u>49.3</u>			P
7440-48-4	Cobalt				
7440-50-8	Copper	<u>187.2J</u>			P
7439-89-6	Iron				
7439-92-1	Lead	<u>6403.9J</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	<u>2.7</u>		*S	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	<u>280.8J</u>		N	P
	Cyanide				
	Tin	<u>394.1U</u>	u		P

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

AS was analyzed at a 1:10 dilution.

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000090

NLI 001 1077

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-9 (3-6)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3030

Level (low/med): Low Date Received: 10-31-89

% Solids: 54.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	113.8		*N	P
7440-38-2	Arsenic	62.0			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	4.2			P
7440-70-2	Calcium				
7440-47-3	Chromium	18.3			P
7440-48-4	Cobalt				
7440-50-8	Copper	73.4	J		P
7439-89-6	Iron				
7439-92-1	Lead	899.1	J	*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.7	J B	N	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	69.7	J	N	P
	Cyanide				
	Tin	146.8	U		P

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

AS was analyzed at a 1:10 dilution.

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000031

NLI 001 1078

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-9 (6-9)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3031

Level (low/med): Low Date Received: 10-31-89

% Solids: 65.8

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	30.4 μJ	u	*N	P
7440-38-2	Arsenic	3.8			F
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium				
7440-47-3	Chromium	9.1			P
7440-48-4	Cobalt				
7440-50-8	Copper	33.4 J			P
7439-89-6	Iron				
7439-92-1	Lead	28.9 J		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium	0.5 J	B	N	F
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.2 J		N	P
	Cyanide				
	Tin	121.6 U	u		P

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000092

NLI 001 1079

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-2(0-3))

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3032Level (low/med): LowDate Received: 10-31-89% Solids: 15.2Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2800.0		*	P
7439-95-4	Magnesium	.			
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: None

Comments:

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000034

NLI 001 1080

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-2(3-6)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3033Level (low/med): LowDate Received: 10-31-89% Solids: 44.7Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	542.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000035

NLI 001 1081

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-2(6-12)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3034Level (low/med): LowDate Received: 10-31-89% Solids: 34.1Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight) mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	180.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000036

NLI 001 1082

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-2(12-15)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3035Level (low/med): LowDate Received: 10-31-89% Solids: 47.1Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	357.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: None

Comments:

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000037

NLI 001 1083

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-8(0-3)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3036Level (low/med): LowDate Received: 10-31-89% Solids: 38.0Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1510.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: None

Comments:

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000038

NLI 001 1084

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-8(3-6)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3037Level (low/med): LowDate Received: 10-31-89% Solids: 59.9Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	490.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: None

Comments:

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NLI 001 1085

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-8(6-9)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3038Level (low/med): LowDate Received: 10-31-89% Solids: 80.7Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	19.6		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000040

NLI 001 1086

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-1(0-3)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3039Level (low/med): LowDate Received: 10-31-89% Solids: 24.4Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1350.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: None.Comments:

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000041

NLI 001 1087

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-1(3-6)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3040Level (low/med): LowDate Received: 10-31-89% Solids: 26.7Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	551.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000042

NLI 001 1088

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-1(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3041

Level (low/med): Low Date Received: 10-31-89

% Solids: 34.3

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	225.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000043

NLI 001 1089

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-1(12-10)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3042Level (low/med): LowDate Received: 10-31-89% Solids: 39.2Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	14.6 U	B	*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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000044

NLI 001 1090

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-2(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3043

Level (low/med): Low Date Received: 10-31-89

% Solids: 55.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	251.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000045

NLI 001 1091

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.

Contract: 2844.014.517

ES-2(3-4)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): Soil

Lab Sample ID: J3044

Level (low/med): Low

Date Received: 10-31-89

% Solids: 71.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	49.4		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown

Clarity Before: -

Texture: Coarse

Color After: Pale Yellow

Clarity After: -

Artifacts: None

Comments:

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000046

NLI 001 1092

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

ES-1(0-3)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3045Level (low/med): LowDate Received: 10-31-89% Solids: 80.8Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	13.9 U		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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NLI 001 1093

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-1(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3046

Level (low/med): Low Date Received: 10-31-89

% Solids: 74.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	21.8		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1094

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

ES-1(6-8-5)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3047Level (low/med): LowDate Received: 10-31-89% Solids: 65.2Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	28.2		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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NLI 001 1095

INORGANIC ANALYSIS DATA SHEET

SITE

WS-12(0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517Lab Code: Case No. SAS No.: SDG No. Matrix (soil/water): Soil Lab Sample ID: J3048Level (low/med): Low Date Received: 10-31-89% Solids: 37.1Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1860.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: CoarseColor After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1096

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-12(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3049Level (low/med): Low Date Received: 10-31-89% Solids: 59.4Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	589.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: CoarseColor After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1097

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-12(6-10)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3050Level (low/med): LowDate Received: 10-31-89% Solids: 69.4Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	140.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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NLI 001 1098

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-4(0-3)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3051Level (low/med): LowDate Received: 10-31-89% Solids: 22.7Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1970.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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NLI 001 1099

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.Contract: 2844.014.517

WS-4(3-6)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3052Level (low/med): LowDate Received: 10-31-89% Solids: 25.8Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1570.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: BrownClarity Before: -Texture: CoarseColor After: Pale YellowClarity After: -Artifacts: NoneComments:

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NLI 001 1100

INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-4(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): SoilLab Sample ID: J3053Level (low/med): LowDate Received: 10-31-89% Solids: 29.2Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	400.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: CoarseColor After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1101

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc.

Contract: 2844.014.517

WS-4(12-18)

Lab Code: _____

Case No. _____

SAS No.: _____

SDG No. _____

Matrix (soil/water): Soil

Lab Sample ID: J3054

Level (low/med): Low

Date Received: 10-31-89

% Solids: 45.6

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	72.4			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown

Clarity Before: -

Texture: Coarse

Color After: Pale Yellow

Clarity After: -

Artifacts: None

Comments:

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NLI 001 1102

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-10(0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3055

Level (low/med): Low Date Received: 10-31-89

% Solids: 23.3

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2470.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1103

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-10(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3056

Level (low/med): Low Date Received: 10-31-89

% Solids: 24.2

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	247.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1104

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-10(6-12)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3057

Level (low/med): Low Date Received: 10-31-89

% Solids: 32.6

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	61.5			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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7/87

000059

NLI 001 1105

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-10(12-20)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3058

Level (low/med): Low Date Received: 10-31-89

% Solids: 62.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	13.9 U	B		P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

Form I - IN

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000060

NLI 001 1106

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-6(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3059

Level (low/med): Low Date Received: 10-31-89

% Solids: 24.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	897.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000061

NLI 001 1107

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-5(0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3060

Level (low/med): Low Date Received: 10-31-89

% Solids: 47.1

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	206.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

Form I - IN

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000062

NLI 001 1108

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-3(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: 13061

Level (low/med): Low Date Received: 10-31-89

% Solids: 79.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	22.8			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000063

NLI 001 1109

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-3(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3062

Level (low/med): Low Date Received: 10-31-89

% Solids: 86.3

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	20.8			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000064

NLI 001 1110

1
INORGANIC ANALYSIS DATA SHEET

SITE

ES-6(0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3063

Level (low/med): Low Date Received: 10-31-89

% Solids: 60.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	36.9			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: Texture: Coarse

Color After: Pale Yellow Clarity After: Artifacts: None

Comments:

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NLI 001 1111

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-6(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3064

Level (low/med): Low Date Received: 10-31-89

% Solids: 82.1

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	73.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000066

NLI 001 1112

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-6(6-10)

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3065

Level (low/med): Low Date Received: 10-31-89

% Solids: 77.1

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	159.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000067

NLI 001 1113

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-7(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3066

Level (low/med): Low Date Received: 10-31-89

% Solids: 82.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	536.0			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000068

NLI 001 1114

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-7(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3067

Level (low/med): Low Date Received: 10-31-89

% Solids: 85.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	44.4			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000069

NLI 001 1115

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-7(6-8)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3068

Level (low/med): Low Date Received: 10-31-89

% Solids: 85.1

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	38.3 R		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000070

NLI 001 1116

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Dup
ES-2(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3069

Level (low/med): Low Date Received: 10-31-89

% Solids: 68.4

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	35.4 R		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000071

NLI 001 1117

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Dup
ES-2(3-5)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3070

Level (low/med): Low Date Received: 10-31-89

% Solids: 80.5

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	15.30		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000072

NLI 001 1118

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-15(0-3)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3071

Level (low/med): Low Date Received: 10-31-89

% Solids: 80.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>246.0 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000073

NLI 001 1119

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-15(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3072

Level (low/med): Low Date Received: 10-31-89

% Solids: 77.4

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1380.0 R			P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000074

NLI 001 1120

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-15(6-8)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3073

Level (low/med): Low Date Received: 10-31-89

% Solids: 81.1

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>250.0 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000075

NLI 001 1121

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-7(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3074

Level (low/med): Low Date Received: 10-31-89

% Solids: 22.9

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1870.02		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000076

NLI 001 1122

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-7(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3075

Level (low/med): Low Date Received: 10-31-89

% Solids: 30.3

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>5540.0R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000077

NLI 001 1123

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-7(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3076

Level (low/med): Low Date Received: 10-31-89

% Solids: 55.9

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	235.0 R		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000078

NLI 001 1124

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-7(12-19)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3077

Level (low/med): Low Date Received: 10-31-89

% Solids: 58.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>8.5 R</u>	<u>B</u>	<u>*</u>	<u>P</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1125

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-16(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3078

Level (low/med): Low Date Received: 10-31-89

% Solids: 53.2

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>1590.08</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: _____ Texture: Coarse

Color After: Pale Yellow Clarity After: _____ Artifacts: None

Comments:

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NLI 001 1126

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-16(3-5)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: Case No. SAS No.: SDG No.

Matrix (soil/water): Soil Lab Sample ID: J3079

Level (low/med): Low Date Received: 10-31-89

% Solids: 70.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>1600.0R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1127

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-4(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3080

Level (low/med): Low Date Received: 10-31-89

% Solids: 36.3

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>628.0 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1128

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-4(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3081

Level (low/med): Low Date Received: 10-31-89

% Solids: 53.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>177.0 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1129

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

ES-4(6-11)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3082

Level (low/med): Low Date Received: 10-31-89

% Solids: 64.0

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>39.7R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1130

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-13(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3083

Level (low/med): Low Date Received: 10-31-89

% Solids: 43.3

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	171.0R		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000035

NLI 001 1131

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-13(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3084

Level (low/med): Low Date Received: 10-31-89

% Solids: 72.5

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>50.8 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000036

NLI 001 1132

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-13(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3085

Level (low/med): Low Date Received: 10-31-89

% Solids: 75.6

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>31.0R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-13(12-16)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3086

Level (low/med): Low Date Received: 10-31-89

% Solids: 82.6

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	9.6	B	*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1134

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-14(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3087

Level (low/med): Low Date Received: 10-31-89

% Solids: 76.4

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>275.0 R</u>		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1135

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-14(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3088

Level (low/med): Low Date Received: 10-31-89

% Solids: 75.7

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2870.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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NLI 001 1136

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-14(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3089

Level (low/med): Low Date Received: 10-31-89

% Solids: 66.5

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	145.0		*	p
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

Form I - IN

7/87

000094

NLI 001 1137

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517 WS-14(12-17)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3090

Level (low/med): Low Date Received: 10-31-89

% Solids: 65.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	<u>20.0</u> 8.7	<u>B</u>	<u>*</u>	<u>P</u>
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-3(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3091

Level (low/med): Low Date Received: 10-31-89

% Solids: 41.2

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	816.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000036

NLI 001 1139

1
INORGANIC ANALYSIS DATA SHEET

SITE

WS-3(3-6)

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3092

Level (low/med): Low Date Received: 10-31-89

% Solids: 25.2

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	2220.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000097

NLI 001 1140

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-3(6-12)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3093

Level (low/med): Low Date Received: 10-31-89

% Solids: 25.6

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	329.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000098

NLI 001 1141

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-3(12-15)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3094

Level (low/med): Low Date Received: 10-31-89

% Solids: 51.7

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	108.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000039

NLI 001 1142

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-17(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3095

Level (low/med): Low Date Received: 10-31-89

% Solids: 45.3

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	1890.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000109

NLI 001 1143

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-17(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3096

Level (low/med): Low Date Received: 10-31-89

% Solids: 74.2

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	110.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000101

NLI 001 1144

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-17(6-9)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3097

Level (low/med): Low Date Received: 10-31-89

% Solids: 73.8

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	33.7		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000102

NLI 001 1145

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-11(0-3)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3098

Level (low/med): Low Date Received: 10-31-89

% Solids: 42.0

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	23700.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000103

NLI 001 1146

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-11(3-6)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3099

Level (low/med): Low Date Received: 10-31-89

% Solids: 80.5

Concentration Units ($\mu\text{g/L}$ or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	59700.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

Form I - IN

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000104

NLI 001 1147

1
INORGANIC ANALYSIS DATA SHEET

SITE

Lab Name: OBG Laboratories, Inc. Contract: 2844.014.517

WS-11(6-10)

Lab Code: _____ Case No. _____ SAS No.: _____ SDG No. _____

Matrix (soil/water): Soil Lab Sample ID: J3100

Level (low/med): Low Date Received: 10-31-89

% Solids: 77.4

Concentration Units (µg/L or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead	702.0		*	P
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
	Cyanide				

Color Before: Brown Clarity Before: - Texture: Coarse

Color After: Pale Yellow Clarity After: - Artifacts: None

Comments:

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000105

NLI 001 1148



Laboratory Report

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517

DESCRIPTION Pedricktown, NJ
Waters

DATE COLLECTED 10-16/17-89 DATE REC'D. 10-19-89 DATE ANALYZED _____

	Sample #	SULFATE	CHLORIDE
ES-2	J2612	100.	55.
ES-5	J2615	30.	38.
WS-17	J2616	140.	8.
ES-7	J2617	73.	22.
ES-3	J2618	57.	21.
Well 16	J2619	31.	-
Well 17	J2620	13.	-
Well 13	J2621	3.0	-
Well 14	J2622	30.	-
Well 15	J2623	22.	-
WS-12	J2624	9.	12.
Rinse Blk. Water	J2625	1.	<1.0
Field Blk.	J2627	<1.0	<1.0

UNITS: mg/l

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments:

OBG Laboratories, Inc., an O'Brien & Gere Limited Company.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY 13221 / (315) 457-1494

Authorized: *Michael D. Pettit*

December 14, 1989

Date:

NLI 001 1149

000107



Laboratory Report

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.014.517
DESCRIPTION Pedricktown, NJ
Waters
DATE COLLECTED 10-16/17-89 DATE REC'D. 10-19-89 DATE ANALYZED _____

	Sample #	SULFATE	CHLORIDE
WS-9	J2597	460.	34.
WS-8	J2600	740.	38.
WS-5	J2601	230.	17.
WS-4	J2602	170.	19.
WS-7	J2603	1200.	31.
WS-6	J2604	240.	19.
WS-11	J2605	34.	19.
WS-1	J2606	170.	22.
WS-2	J2607	170.	19.
WS-3	J2608	180.	17.
ES-6	J2609	19.	6.
WS-16	J2610	140.	5.
ES-1	J2611	600.	230.

UNITS: mg/l

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments:

OBG Laboratories, Inc., an O'Brien & Gere Limited Company
Box 4942 / 1304 Buckley Rd. / Syracuse, NY 13221 / (315) 457-1494

Authorized: *Michael N. Pettit*

Date: December 14, 1989

NLI 001 1150



Purgeable Priority Pollutants

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.015.517
DESCRIPTION Pedricktown, NJ - Water Samples
DATE COLLECTED 10-16,17-89 DATE REC'D. 10-19-89 DATE ANALYZED 10-24-89

DESCRIPTION:	Well Br	Well 11	Well 11R- AP	Well 11R- BP	Well 18	Field Blank
SAMPLE NO.:	J2628	J2629	J2630	J2631	J2632	J2635
Chloromethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	↓	↓	↓	↓	↓
Vinyl chloride	9.5	↓	↓	↓	↓	↓
Chloroethane	<1.0	↓	↓	↓	↓	↓
Methylene chloride	↓	↓	↓	↓	↓	↓
1,1-Dichloroethene	↓	160.0	↓	↓	↓	↓
1,1-Dichloroethane	↓	50.0	↓	↓	↓	↓
t-1,2-Dichloroethene	↓	<10.0	↓	↓	↓	↓
Chloroform	↓	↓	↓	↓	↓	↓
1,2-Dichloroethane	↓	↓	↓	↓	↓	↓
1,1,1-Trichloroethane	↓	1900.0	5.0	↓	↓	↓
Carbon tetrachloride	↓	<100.0	<1.0	↓	↓	↓
Bromodichloromethane	↓	<100.0	↓	↓	↓	↓
1,2-Dichloropropane	↓	<10.0	↓	↓	↓	↓
t-1,3-Dichloropropene	↓	↓	↓	↓	↓	↓
Trichloroethene	↓	↓	↓	↓	↓	↓
Benzene	↓	↓	↓	↓	↓	↓
Dibromochloromethane	↓	↓	↓	↓	↓	↓
1,1,2-Trichloroethane	↓	↓	↓	↓	↓	↓
c-1,3-Dichloropropene	↓	↓	↓	↓	↓	↓
2-Chloroethylvinyl ether	<10.0	<100.0	<10.0	<10.0	<10.0	<10.0
Bromoform	<10.0	<100.0	<10.0	<10.0	<10.0	<10.0
1,1,2,2-Tetrachloroethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	↓	57.0	↓	↓	↓	↓
Toluene	↓	<10.0	↓	↓	↓	↓
Chlorobenzene	↓	↓	↓	↓	↓	↓
Ethylbenzene	↓	↓	↓	↓	↓	↓
Xylenes	↓	↓	↓	↓	↓	↓

UNITS: $\mu\text{g/l}$

Methodology: Federal Register—40 CFR, Part 136, October 26, 1984

Units: $\mu\text{g/l}$ (ppb) unless otherwise noted

Comments:

Authorized: Michael N. Pellmar 000108

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY 13221 / (315) 457-1494

Date: December 14, 1989

NLI 001 1151



Laboratory Report

CLIENT NL INDUSTRIES, INC. JOB NO. 2844.015.517
DESCRIPTION Pedricktown, NJ - Water Samples

DATE COLLECTED 10-16,17-89 DATE REC'D. 10-19-89 DATE ANALYZED 10-24-89

Description	Well Br	Well 11	Well 11R- AP	Well 11R- BP	Well 18	Field Blank
Sample #	J2628	J2629	J2630	J2631	J2632	J2635
Dichlorodifluoromethane	<1.0	<10.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	↓	↓	↓	↓	↓	↓
1,2-Dichlorobenzene			1.5			
1,3-Dichlorobenzene			<1.0			
1,4-Dichlorobenzene						

UNITS: $\mu\text{g/l}$

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments:

OBG Laboratories, Inc., an O'Brien & Gere Limited Company
Box 4942/1304 Buckley Rd./Syracuse, NY 13221/(315) 457-1494

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NLI 001 1152

Attachments



O'BRIEN & GERE

NLI 001 1153

ATTACHMENT 1

NL-IND-1211
7-1-1989

SOP NO. HW-6
Revision #6

CLP ORGANICS DATA REVIEW
AND PRELIMINARY REVIEW

INCURRED BY: *Louis Bevilacqua* Date: 4/6/89
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APPROVED BY: *Gerard F. McKenna* Date: 4/14/89
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INTRODUCTION TO DATA VALIDATION

1.0 Scope

- 1.1 This procedure is applicable to organic data obtained from contractor laboratories working for the Contract Laboratory Program (CLP).
- 1.2 The data validation is based upon analytical and quality assurance requirements specified in the Statement of Work (SOW).

2.0 Responsibilities

Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

- 2.1 Data Assessment - The reviewer must answer every question on the checklist. All response shall be in ink.
- 2.2 Data Assessment Narrative (Attachment 1) - Data reviewer is required to use these forms and must match the action in the narrative with the action taken on the Form I(s).
- 2.3 Rejection Summary Form (Attachment 2) - Fill in the total number of analytes measured by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in the boxes where analyses were not performed or criteria do not apply.
- 2.4 Organic Regional Data Assessment - Data reviewer is also required to fill out Organic Regional Data Assessment Form (Attachment 3).
- 2.5 Telephone Record Log - The data reviewer should enter the bare facts of inquiry before initiating any authorized telephone conversation with a CLP laboratory. After the case review has been completed, mail the white copy of the Telephone Record Log to the laboratory and the pink copy to SMO. File the yellow copy in the Telephone Record Log folder and attach a photocopy of the Telephone Record Log to the completed Data Assessment Narrative.
- 2.6 Forwarded Paperwork - Upon completion of the review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
 - a. data package
 - b. completed assessment checklist
 - c. SMO Contract Compliance Screening (CCS)Forward four (4) copies of the completed Data Assessment Narrative along with four (4) copies of the Organic Data Assessment Form: one each for the appropriate Regional DFO, the Sample Management Office (SMO), and to the last two addresses of the Data Reviewers Mailing List.
- 2.7 Filed Paperwork - Upon completion of the review, the following are to be filed within the Monitoring and Management Branch (MMB) files:
 - a. Telephone record Log (copy)
 - b. Record of Communication (original)
 - c. Rejection Summary Form

- 3.0 Rejection of Data - All values determined to be unacceptable on the Organic Analysis Data Sheet (Form I) must be flagged with an "R". As soon as review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.
- 4.0 Acceptance Criteria - In order that the reviews be consistent among reviewers, this Standard Operating Procedure (SOP) should be used. Additional guidance can be found in the Functional Guidelines.
- 5.0 SMD Contract Compliance Screening (CCS) - This is intended to aid the reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from the laboratory in response to CCS must be used by the reviewer.

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: _____

LAB: _____

SITE: _____

0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.

[] — ✓

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMO CCS checklist included with package?

[] — ✓

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

[] — —

2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?

[] — ✓

1) Data Validation Checklist

The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any ENA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

✓ —

ENA data?

✓ —

Pesticide/PCB data?

✓ —

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART A: VOA ANALYSES0 Traffic Report and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

☒

—

—

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

☒☐

—

ACTION: Use professional judgement to evaluate the effect on the quality of the data.

ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be rejected.

ACTION: If both VOA vials for a sample have air bubbles, flag all positive results "J" and all non-detects "R".

0 Holding Times

2.1 Have any VOA holding times, determined from date of collection to date of analysis, been exceeded?

—

☒

—

If unpreserved, aqueous aromatic volatiles must be analyzed within 7 days of collection and non-aromatic volatiles must be analyzed within 14 days. If preserved with hydrochloric acid and stored at 4°C, then both aromatic and non-aromatic volatiles must be analyzed within 14 days. If uncertain about preservation, contact the sampler to determine whether the samples were preserved.

A ten-day holding time for soil samples is recommended.

Table of Holding Time Violations

Sample	Sample Matrix	Preserved ?	(See Traffic Report)		Date Analyzed
			Date Sampled	Date Lab Received	
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

ACTION: If holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("U"), and document in the narrative that holding times were exceeded.

YES NO N/A

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. The reviewer may determine that non-detect data are unusable ("R").

3.0 Surrogate Recovery (Form II)

3.1 Are the VOA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

- | | | | |
|--------------|-------------------------------------|---|-------------------------------------|
| a. Low Water | <input checked="" type="checkbox"/> | — | — |
| b. Med Water | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |
| c. Low Soil | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |
| d. Med Soil | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |

3.2 Are all the VOA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

- | | | | |
|--------------|-------------------------------------|---|-------------------------------------|
| a. Low Water | <input checked="" type="checkbox"/> | — | — |
| b. Med Water | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |
| c. Low Soil | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |
| d. Med Soil | <input type="checkbox"/> | — | <input checked="" type="checkbox"/> |

ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

3.3 Were outliers marked correctly with an asterisk?

☒ — —

ACTION: Circle all outliers in red.

3.4 Was one or more VOA surrogate recovery outside of contract specifications for any sample or method blank?

— ☒ —

If yes, were samples reanalyzed?

☐ — ☒

Were method blanks reanalyzed?

☐ — ☒

ACTION: If surrogate recoveries are > 10% but all do not meet SOW specifications:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("U").

YES NO N/A

If any surrogate has a recovery of <10% :

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as unusable ("R").

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and re-analyses. Check the internal standard areas.

3.5 Are there any transcription/calculation errors between raw data and Form II?

— [✓] —

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

[✓] — —

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

[✓] — —

b. Med Water

[] — ✓

c. Low Soil

[] — ✓

d. Med Soil

[] — ✓

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many VOA spike recoveries are outside QC limits?

Water

Soils

0 out of 10

— out of 10

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water

Soils

0 out of 5

— out of 5

ACTION: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for the MS/MSD analysis. Use professional judgement in applying this criterion to other samples in the rack.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

YES ☒ NO ☐ N/A ☐5.2 Frequency of Analysis: for the analysis of VOA
TCL compounds, has a reagent/method blank been
analyzed for each set of samples or every 20 samples
of similar matrix (low water, med water, low soil,
medium soil), whichever is more frequent?YES ☒ NO ☐ N/A ☐5.3 Has a VOA instrument blank been analyzed at least
once every twelve hours for each GC/MS system used?YES ☒ NO ☐ N/A ☐ACTION: If any method blank data are missing, call lab
for explanation / resubmittal. If not available,
reject all associated positive data ("R").5.4 Chromatography: review the blank raw data - chromatograms
(RICS), quant reports or data system printouts and spectra.Is the chromatographic performance (baseline stability)
for each instrument acceptable for VOAs?YES ☒ NO ☐ N/A ☐ACTION: Use professional judgement to determine the
effect on the data.6.0 ContaminationNOTE: "Water blanks" and "distilled water blanks" are
validated like any other sample and are not used
to qualify data. Do not confuse them with the
other QC blanks discussed below.6.1 Do any method/instrument/reagent blanks have positive
results (TCL and/or TIC) for VOAs? When applied as
described below, the contaminant concentration in
these blanks are multiplied by the sample Dilution
Factor.YES ☒ NO ☐ N/A ☐6.2 Do any field/trip/rinse blanks have positive VOA results
(TCL and/or TIC)?YES ☒ NO ☐ N/A ☐ACTION: Prepare a list of the samples associated
with each of the contaminated blanks.
(Attach a separate sheet.)NOTE: Only field/rinse blanks taken the same day
as the samples are used to qualify data. Trip
blanks are used to qualify only those samples
with which they were shipped. Blanks may not
be qualified because of contamination in another
blank. Blanks may be qualified for surrogate,
spectral, tuning or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & > 10x blank value
Methylene chloride	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed
Acetone			
Toluene			
2-butanone			
	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5 blank value
Other Contaminants	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? *Trip blanks were analyzed* ☐ ☒ ☐

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Tuning and Mass Calibration (Form V)

7.1 Are the GC/MS Tuning and Mass Calibration Forms (Form V) present for Bromofluorobenzene (BFB)? ☒ ☐ ☐

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift? ☒ ☐ ☐

7.3 Has a tuning performance compound been analyzed for every twelve hours of sample analysis per instrument? ☒ ☐ ☐

ACTION: If any tuning data are missing, take action specified in 3.2 above.

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

	YES	NO	N/A
DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

- 7.4 Have the ion abundance criteria been met for each instrument used?

☒ ☐ ☐

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If tuning calibration is in error, flag all associated sample data as unusable ("R"). However, if expanded ion criteria are met (See 1988 Functional Guidelines), the data reviewer may accept data with appropriate qualifiers.

- 7.5 Are there any transcription / calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)

☐ ☒ ☐

- 7.6 Have the appropriate number of significant figures (two) been reported? (Check at least two values, but if errors are found check more values.)

☒ ☐ ☐

ACTION: If large errors exist, call lab for explanation / resubmittal, make necessary corrections and note errors under "Conclusions".

- 7.7 Are the spectra of the mass calibration compound acceptable?

☒ ☐ ☐

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes

- 8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:

- a. Samples and/or fractions as appropriate
b. Matrix spikes and matrix spike duplicates
c. Blanks

☒ ☐ ☐
☒ ☐ ☐
☒ ☐ ☐

	YES	NO	N/A
8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
a. Samples and/or fractions as appropriate	<input checked="" type="checkbox"/>	—	—
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	<input checked="" type="checkbox"/>	—	—
c. Blanks	<input checked="" type="checkbox"/>	—	—
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the Quant Report?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—
8.4 Is chromatographic performance acceptable with respect to:			
Baseline stability	<input checked="" type="checkbox"/>	—	—
Resolution	<input checked="" type="checkbox"/>	—	—
Peak shape	<input checked="" type="checkbox"/>	—	—
Full-scale graph (attenuation)	<input checked="" type="checkbox"/>	—	—
Other: _____	<input type="checkbox"/>	—	—
ACTION: Use professional judgement to determine the acceptability of the data.			
8.5 Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	<input checked="" type="checkbox"/>	—	—
ACTION: If any mass spectra are missing, take action specified in 3.2 above. If Lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".			
8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	<input checked="" type="checkbox"/>	—	—
8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	<input checked="" type="checkbox"/>	—	—
8.8 Do sample and standard relative ion intensities agree within 20%?	<input checked="" type="checkbox"/>	—	—
ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (at the calculated detection limit).			

YES NO N/A

7.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "J" qualifier?

☒ ☐ ☐

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate

☒ ☐ ☐

b. Blanks

☒ ☐ ☐

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "J" qualifier if missing and "N" qualifier to all identified TIC compounds on Form I, Part B.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene—a VOA TCL—and should not be reported as a TIC)?

☐ ☒ ☐

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? - No TICs present

☐ ☐ ☒

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?

☐ ☐ ☒

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

8.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?

☐ ☒ ☐

10.2 Are the CRQIs adjusted to reflect sample dilutions and, for soils, sample moisture?

☒ ☐ ☐

YES

NO

N/A

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

1.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?

[✓]

—

—

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

2.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction?

[✓]

—

—

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for volatiles over the concentration range of the calibration (RSD <30%)?

[✓]

—

—

ACTION: Circle all outliers in red.

ACTION: When RSD >30%, non-detects may be qualified using professional judgement. Flag all positive results "J". When RSD >90%, flag all non-detects as unusable ("R"). (Region II policy.)

12.3 Do any compounds have a RRF < 0.05?

—

[✓]

—

ACTION: Circle all outliers in red.

ACTION: If any volatile compound has an average RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

12.4 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.)

YES NO N/A

— [✓] —

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

3.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction?

[✓] — —

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

[✓] — —

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation / resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any continuing calibration standard compounds have a RRF < 0.05?

— [✓] —

ACTION: Circle all outliers in red.

ACTION: If any volatile compound has a RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

13.4 Do any compounds have a % difference between initial and continuing calibration RRF > 25%?

✓ [] —

ACTION: Circle all outliers in red and qualify associated sample data as outlined in the table below:

% DIFFERENCE			YES	NO	N/A
25-50	50-90	>90			
'J' positive results, no action for non detects	'J' positive results, 'U' non detects	'J' positive results, "R" non detects			

13.5 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)

— ☒ —

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits for each continuing calibration?

☒ — —

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(Attach additional sheets if necessary.)

ACTION: If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard. If extremely low area counts are reported, or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

☒ — —

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

YES

NO

N/A

15.1 Were any field duplicates submitted for VOA analysis?

[]

✓

—

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

YES NO N/A

PART B: BVA ANALYSES

..0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

☒ ☐ ☐

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

☒ ☐ ☐

ACTION: Use professional judgement to evaluate the effect on the quality of the data.

ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be rejected.

0 Holding Times

2.1 Have any BVA holding times, determined from date of collection to date of extraction, been exceeded?

☐ ☒ ☐

Samples for BVA analysis, both soils and waters, must be extracted within seven days of the date of collection. Extracts must be analyzed within 40 days of the date of extraction.

Table of Holding Time Violations

Sample	Sample Matrix	Date Sampled	(See Traffic Report)		Date Analyzed
			Date Lab Received	Date Extracted	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ACTION: If holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("U"), and document in the narrative that holding times were exceeded.

YES

NO

N/A

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. The reviewer may determine that non-detect data are unusable ("R").

0 Surrogate Recovery (Form II)

3.1 Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	—	—
b. Med Water	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
c. Low Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
d. Med Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water	<input checked="" type="checkbox"/>	—	—
b. Med Water	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
c. Low Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
d. Med Soil	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

3.3 Were outliers marked correctly with an asterisk?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

ACTION: Circle all outliers in red.

3.4 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
-------------------------------------	--------------------------	---

If yes, were samples reanalyzed?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

Were method blanks reanalyzed?

<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
--------------------------	---	-------------------------------------

ACTION: If all BNA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. base-neutral OR acid compounds):

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("U").

YES	NO	N/A
-----	----	-----

If any base-neutral or acid surrogate has a recovery of <10% :

1. Flag all positive results for that fraction (i.e. all acid or base-neutral compounds) "J".
2. Flag all non-detects for that fraction "R".

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and re-analyses. Check the internal standard areas.

- 3.5 Are there any transcription/calculation errors between raw data and Form II? [✓]

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

4.0 Matrix Spikes (Form III)

- 4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present? [✓]

- 4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

- a. Low Water [✓]
- b. Med Water []
- c. Low Soil []
- d. Med Soil []

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

- 4.3 How many BNA spike recoveries are outside QC limits?

Water

Soils

6 out of 22

 out of 22

- 4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water

Soils

2 out of 11

 out of 11

ACTION: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for MS/MSD analysis. Use professional judgement in applying this criterion to other samples

YES	NO	N/A
-----	----	-----

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

5.2 Frequency of Analysis: for the analysis of BNA
TCL compounds, has a reagent/method blank been
analyzed for each set of samples or every 20 samples
of similar matrix (low water, med water, low soil,
medium soil), whichever is more frequent?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

5.3 Chromatography: review the blank raw data - chromatograms
(RICs), quant reports or data system printouts and spectra.

Is the chromatographic performance (baseline stability)
for each instrument acceptable for VOAs?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

ACTION: Use professional judgement to determine the
effect on the data.

6.0 Contamination

NOTE: "Water blanks" and "distilled water blanks" are
validated like any other sample and are not used
to qualify data. Do not confuse them with the
other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive
results (TCL and/or TIC) for BNAs? When applied as
described below, the contaminant concentration in
these blanks are multiplied by the sample Dilution
Factor.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
-------------------------------------	--------------------------	---

6.2 Do any field/rinse blanks have positive BNA results
(TCL and/or TIC)?

—	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	-------------------------------------

ACTION: Prepare a list of the samples associated
with each of the contaminated blanks.
(Attach a separate sheet.)

NOTE: Only field/rinse blanks taken the same day
as the samples are used to qualify data. Blanks
may not be qualified because of contamination
in another blank. Blanks may be qualified for
surrogate, spectral, tuning or calibration QC
problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & > 10x blank value
Common Phthalate Esters	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed
Other Contaminants	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5 blank value
	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? ☐ ☒ ☐

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Tuning and Mass Calibration (Form V)

7.1 Are the GC/MS Tuning and Mass Calibration Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? ☒ ☐ ☐

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift? ☒ ☐ ☐

7.3 Has a tuning performance compound been analyzed for every twelve hours of sample analysis per instrument? ☒ ☐ ☐

ACTION: If any tuning data are missing, take action specified in 3.2 above.

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

				YES	NO	N/A
DATE	TIME	INSTRUMENT	SAMPLE NUMBERS			

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundance criteria been met for each instrument used?

[✓] — —

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If tuning calibration is in error, flag all associated sample data as unusable ("R"). However, if expanded ion criteria are met (See 1988 Functional Guidelines), the data reviewer may accept data with appropriate qualifiers.

7.5 Are there any transcription / calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)

— [✓] —

7.6 Have the appropriate number of significant figures (two) been reported? (Check at least two values, but if errors are found check more values.)

— [] —

ACTION: If large errors exist, call lab for explanation / resubmittal, make necessary corrections and note errors under "Conclusions".

7.7 Are the spectra of the mass calibration compound acceptable?

[✓] — —

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes

8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate

[✓] — —

b. Matrix spikes and matrix spike duplicates

[✓] — —

c. Blanks

[✓] — —

	YES	NO	N/A
8.2 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
a. Samples and/or fractions as appropriate	<input checked="" type="checkbox"/>	—	—
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	<input checked="" type="checkbox"/>	—	—
c. Blanks	<input checked="" type="checkbox"/>	—	—
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the Quant Report?	<input type="checkbox"/>	/	—
8.4 Is chromatographic performance acceptable with respect to:			
Baseline stability	<input type="checkbox"/>	—	—
Resolution	<input type="checkbox"/>	—	—
Peak shape	<input checked="" type="checkbox"/>	—	—
Full-scale graph (attenuation)	<input checked="" type="checkbox"/>	—	—
Other: _____	<input type="checkbox"/>	—	—
ACTION: Use professional judgement to determine the acceptability of the data.			
8.5 Are the lab-generated standard mass spectra of the identified BNA compounds present for each sample?	<input checked="" type="checkbox"/>	—	—
ACTION: If any mass spectra are missing, take action specified in 3.2 above. If Lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".			
8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	<input checked="" type="checkbox"/>	—	—
8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	<input checked="" type="checkbox"/>	—	—
8.8 Do sample and standard relative ion intensities agree within 20%?	<input checked="" type="checkbox"/>	—	—
ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (at the calculated detection limit).			

YES

NO

N/A

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "J" qualifier?

☒

—

—

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate

☒

—

—

b. Blanks

☒

—

—

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "J" qualifier if missing and "N" qualifier to all identified TIC compounds on Form I, Part B.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene—a VOA TCL—and should not be reported as a TIC)?

—

☒

—

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?

☒

—

—

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?

☒

—

—

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?

—

☒

—

10.2 Are the CROs adjusted to reflect sample dilutions and, for soils, sample moisture?

☒☐

—

YES NO N/A

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRLs are used (unless a QC exceedance dictates the use of the higher CRL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?

[✓] — —

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction?

[✓] — —

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for BNAs over the concentration range of the calibration (RSD <30%)?

[✓] — —

ACTION: Circle all outliers in red.

ACTION: When RSD >30%, non-detects may be qualified using professional judgement. Flag all positive results "J". When RSD >90%, flag all non-detects as unusable ("R"). (Region II policy.)

12.3 Do any compounds have a RRF < 0.05?

— [✓] —

ACTION: Circle all outliers in red.

ACTION: If any BNA compound has an average RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

	YES	NO	N/A
12.4 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.)	—	<input checked="" type="checkbox"/>	—

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

7.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction?	<input checked="" type="checkbox"/>	—	—
---	-------------------------------------	---	---

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	<input checked="" type="checkbox"/>	—	—
--	-------------------------------------	---	---

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation / resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any continuing calibration standard compounds have a RRF < 0.05?	—	<input checked="" type="checkbox"/>	—
--	---	-------------------------------------	---

ACTION: Circle all outliers in red.

ACTION: If any BNA compound has a RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

13.4 Do any compounds have a % difference between initial and continuing calibration RRF > 25%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
---	-------------------------------------	--------------------------	---

ACTION: Circle all outliers in red and qualify associated sample data as outlined in the table below:

YES NO N/A

% DIFFERENCE

25-50	50-90	>90
'J' positive results, no action for non detects	'J' positive results, 'U' non detects	'J' positive results, "R" non detects

13.5 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)

[✓]

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits for each continuing calibration?

[✓]

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(Attach additional sheets if necessary.)

ACTION: If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard. If extremely low area counts are reported, or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

[✓]

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

YES

NO

N/A

15.1 Were any field duplicates submitted for BNA analysis?

☐☒☐

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

PART C: PESTICIDE/PCB ANALYSES

YES NO N/A

1. Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

☒ ☐ ☐

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

☒ ☐ ☐

ACTION: Use professional judgement to evaluate the effect on the quality of the data.

ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be rejected.

2.0 Holding Times

2.1 Have any PEST/PCB holding times, determined from date of collection to date of extraction, been exceeded?

☐ ☒ ☐

Samples for PEST/PCB analysis, both soils and waters, must be extracted within seven days of the date of collection. Extracts must be analyzed within 40 days of the date of extraction.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water

☒ ☐ ☐

b. Med Water

☐ ☐ ☒

c. Low Soil

☐ ☐ ☒

d. Med Soil

☐ ☐ ☒

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water

☒ ☐ ☐

b. Med Water

☐ ☐ ☒

c. Low Soil

☐ ☐ ☒

d. Med Soil

☐ ☐ ☒

YES NO N/A

ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

3.3 Were outliers marked correctly with an asterisk?

[✓] — —

ACTION: Circle all outliers in red.

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

✓ [] —

ACTION: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J". If recovery is zero, flag positive results "J" and non-detects "R". If recovery for the blank is zero, flag non-detects for all associated samples "R". If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewers professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

3.5 Are there any transcription/calculation errors between raw data and Form II?

— [✓] —

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

[✓] — —

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

[✓] — —

b. Med Water

[] — ✓

c. Low Soil

[] — ✓

d. Med Soil

[] — ✓

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water

Soils

6 out of 12

— out of 12

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

YES NO N/A

Water

Soils

0 out of 6

 out of 6

ACTION: If MS and MSD both have less than zero recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for MS/MSD analysis. Use professional judgement in applying this criterion to other samples.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

[☒]

5.2 Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?

[☒]

5.3 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

[☒]

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

 [☒]

6.2 Do any field/rinse blanks have positive PEST/PCB results?

 [☐] ☒

ACTION: Prepare a list of the samples associated with each of the contaminated blanks.
(Attach a separate sheet.)

YES NO N/A

NOTE: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; cross out "B" flag	No qualification is needed

6.3 Are there field/rinse/equipment blanks associated with every sample? ☐ ☒ ☐

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) column present:

- | | | | |
|---|-------------------------------------|--------------------------|--------------------------|
| a. Evaluation Standard Mix A | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Evaluation Standard Mix B | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Evaluation Standard Mix C | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Individual Standard Mix A | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Individual Standard Mix B | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Multi-component Pesticides Toxaphene & Chlordane | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Aroclors 1016/1260 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h. Aroclors 1221, 1232, 1242, 1248, and 1254 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ACTION: If no, take action specified in 3.2 above

	YES	NO	N/A
7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, take action specified in 3.2 above.

7.3 Are there any transcription/calculation errors between raw data and Form VIII?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	-------------------------------------	--------------------------

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

7.4 Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- for Endrin?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	-------------------------------------

ACTION:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:

1. Flag all positive DDT results "J".
2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R".
3. Flag positive DDD and DDE results "JN".
4. If DDT breakdown is > 20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is > 20% on quantitation column, beginning with the samples following the last in control standard:

1. Flag all positive Endrin results "J".
2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R".
3. Flag Endrin Ketone positive results "JN".
4. If Endrin breakdown is > 20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used (it can only be used if the conditions in 7.4 above are met) and is > 20% on quantitation column beginning with the last in control standard, take the actions specified in 7.4 a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported, flag result "N").

	YES	NO	N/A
7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

7.6 Is the % difference between the EVAL A and each analysis (quantitation and confirmation) DBC retention time within QC limits (2% for packed column, 0.3% for capillary [I.D. < 0.32 mm], 1% for megabore [0.32 < I.D. < 2 mm]) ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate.

7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

0 Pesticide/PCB Standards Summary

8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, take action specified in 3.2 above.

8.2 Are there any transcription/calculation errors between raw data and Form IX?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

8.3 Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

ACTION: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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YES NO N/A

ACTION: Beginning with the samples following the last in control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and, DBC is visible non-detects are valid. If peaks are present and cannot be identified through "pattern recognition" or a consistent shift in standard retention times, flag all affected compound results "R".

8.5 Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hr sequence) calibration factors?

☐ ☒ ☐

ACTION: If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects.

0 Pesticide/PCB Identification

9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

☐ ☐ ☒

ACTION: If no, take action specified in 3.2 above.

9.2 Are there any transcription errors between raw data and Form X?

☐ ☐ ☒

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

9.3 Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses? - All nondetected

☐ ☐ ☒

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?

☐ ☐ ☒

ACTION: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e. base on RRT to DBC).

9.4 Check chromatograms for false negatives, especially for the multiple peak components toxaphene and PCB's. Were there any false negatives?

☐ ☒ ☐

ACTION: If appropriate PCB standards were not analyzed, or if the lab performed no confirmation analysis, flag the appropriate data with an "R".

10.0 Compound Quantitation and Reported Detection Limits

YES NO N/A

- 10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Were any errors found?

— [✓] —

NOTE: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt at a second column confirmation.

- 10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

— [✓] —

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0 Chromatogram Quality

- 11.1 Were baselines stable? *

[✓] — —

- 11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?

— [✓] —

- 11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?

[✓] — —

ACTION: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

* Peak shape was not sharp

YES NO N/A

12.0 Field Duplicates

12.1 Were any field duplicates submitted for PEST/PCB analysis?

[] ☒ ☐

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

YES NO N/A

12.4 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.)

— [✓] —

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction?

[✓] — —

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?

[✓] — —

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation / resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any continuing calibration standard compounds have a RRF < 0.05?

— [✓] —

ACTION: Circle all outliers in red.

ACTION: If any BNA compound has a RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

13.4 Do any compounds have a % difference between initial and continuing calibration RRF > 25%?

[✓] [] —

ACTION: Circle all outliers in red and qualify associated sample data as outlined in the table below:

YES NO N/A

% DIFFERENCE

25-50	50-90	>90
'J' positive results, no action for non detects	'J' positive results, 'U' non detects	'J' positive results, "R" non detects

13.5 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)

— [✓] —

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits for each continuing calibration?

[✓] — —

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(Attach additional sheets if necessary.)

ACTION: If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard. If extremely low area counts are reported, or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard?

[✓] — —

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

YES

NO

N/A

15.1 Were any field duplicates submitted for VOA analysis?

[]

✓

—

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. _____ SDG No. _____ LABORATORY _____ SITE _____

DATA ASSESSMENT:

The current functional guidelines (1988) for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's
Signature: _____ Date: ____/____/19____

Verified By: _____ Date: ____/____/19____

DATA ASSESSMENT:

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

1. VOA and 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,987,988,989,990,991,992,993,994,995,996,997,998,999,1000,1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1014,1015,1016,1017,1018,1019,1020,1021,1022,1023,1024,1025,1026,1027,1028,1029,1030,1031,1032,1033,1034,1035,1036,1037,1038,1039,1040,1041,1042,1043,1044,1045,1046,1047,1048,1049,1050,1051,1052,1053,1054,1055,1056,1057,1058,1059,1060,1061,1062,1063,1064,1065,1066,1067,1068,1069,1070,1071,1072,1073,1074,1075,1076,1077,1078,1079,1080,1081,1082,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1109,1110,1111,1112,1113,1114,1115,1116,1117,1118,1119,1120,1121,1122,1123,1124,1125,1126,1127,1128,1129,1130,1131,1132,1133,1134,1135,1136,1137,1138,1139,1140,1141,1142,1143,1144,1145,1146,1147,1148,1149,1150,1151,1152,1153,1154,1155,1156,1157,1158,1159,1160,1161,1162,1163,1164,1165,1166,1167,1168,1169,1170,1171,1172,1173,1174,1175,1176,1177,1178,1179,1180,1181,1182,1183,1184,1185,1186,1187,1188,1189,1190,1191,1192,1193,1194,1195,1196,1197,1198,1199,1200,1201,1202,1203,1204,1205,1206,1207,1208,1209,1210,1211,1212,1213,1214,1215,1216,1217,1218,1219,1220,1221,1222,1223,1224,1225,1226,1227,1228,1229,1230,1231,1232,1233,1234,1235,1236,1237,1238,1239,1240,1241,1242,1243,1244,1245,1246,1247,1248,1249,1250,1251,1252,1253,1254,1255,1256,1257,1258,1259,1260,1261,1262,1263,1264,1265,1266,1267,1268,1269,1270,1271,1272,1273,1274,1275,1276,1277,1278,1279,1280,1281,1282,1283,1284,1285,1286,1287,1288,1289,1290,1291,1292,1293,1294,1295,1296,1297,1298,1299,1300,1301,1302,1303,1304,1305,1306,1307,1308,1309,1310,1311,1312,1313,1314,1315,1316,1317,1318,1319,1320,1321,1322,1323,1324,1325,1326,1327,1328,1329,1330,1331,1332,1333,1334,1335,1336,1337,1338,1339,1340,1341,1342,1343,1344,1345,1346,1347,1348,1349,1350,1351,1352,1353,1354,1355,1356,1357,1358,1359,1360,1361,1362,1363,1364,1365,1366,1367,1368,1369,1370,1371,1372,1373,1374,1375,1376,1377,1378,1379,1380,1381,1382,1383,1384,1385,1386,1387,1388,1389,1390,1391,1392,1393,1394,1395,1396,1397,1398,1399,1400,1401,1402,1403,1404,1405,1406,1407,1408,1409,1410,1411,1412,1413,1414,1415,1416,1417,1418,1419,1420,1421,1422,1423,1424,1425,1426,1427,1428,1429,1430,1431,1432,1433,1434,1435,1436,1437,1438,1439,1440,1441,1442,1443,1444,1445,1446,1447,1448,1449,1450,1451,1452,1453,1454,1455,1456,1457,1458,1459,1460,1461,1462,1463,1464,1465,1466,1467,1468,1469,1470,1471,1472,1473,1474,1475,1476,1477,1478,1479,1480,1481,1482,1483,1484,1485,1486,1487,1488,1489,1490,1491,1492,1493,1494,1495,1496,1497,1498,1499,1500,1501,1502,1503,1504,1505,1506,1507,1508,1509,1510,1511,1512,1513,1514,1515,1516,1517,1518,1519,1520,1521,1522,1523,1524,1525,1526,1527,1528,1529,1530,1531,1532,1533,1534,1535,1536,1537,1538,1539,1540,1541,1542,1543,1544,1545,1546,1547,1548,1549,1550,1551,1552,1553,1554,1555,1556,1557,1558,1559,1560,1561,1562,1563,1564,1565,1566,1567,1568,1569,1570,1571,1572,1573,1574,1575,1576,1577,1578,1579,1580,1581,1582,1583,1584,1585,1586,1587,1588,1589,1590,1591,1592,1593,1594,1595,1596,1597,1598,1599,1600,1601,1602,1603,1604,1605,1606,1607,1608,1609,1610,1611,1612,1613,1614,1615,1616,1617,1618,1619,1620,1621,1622,1623,1624,1625,1626,1627,1628,1629,1630,1631,1632,1633,1634,1635,1636,1637,1638,1639,1640,1641,1642,1643,1644,1645,1646,1647,1648,1649,1650,1651,1652,1653,1654,1655,1656,1657,1658,1659,1660,1661,1662,1663,1664,1665,1666,1667,1668,1669,1670,1671,1672,1673,1674,1675,1676,1677,1678,1679,1680,1681,1682,1683,1684,1685,1686,1687,1688,1689,1690,1691,1692,1693,1694,1695,1696,1697,1698,1699,1700,1701,1702,1703,1704,1705,1706,1707,1708,1709,1710,1711,1712,1713,1714,1715,1716,1717,1718,1719,1720,1721,1722,1723,1724,1725,1726,1727,1728,1729,1730,1731,1732,1733,1734,1735,1736,1737,1738,1739,1740,1741,1742,1743,1744,1745,1746,1747,1748,1749,1750,1751,1752,1753,1754,1755,1756,1757,1758,1759,1760,1761,1762,1763,1764,1765,1766,1767,1768,1769,1770,1771,1772,1773,1774,1775,1776,1777,1778,1779,1780,1781,1782,1783,1784,1785,1786,1787,1788,1789,1790,1791,1792,1793,1794,1795,1796,1797,1798,1799,1800,1801,1802,1803,1804,1805,1806,1807,1808,1809,1810,1811,1812,1813,1814,1815,1816,1817,1818,1819,1820,1821,1822,1823,1824,1825,1826,1827,1828,1829,1830,1831,1832,1833,1834,1835,1836,1837,1838,1839,1840,1841,1842,1843,1844,1845,1846,1847,1848,1849,1850,1851,1852,1853,1854,1855,1856,1857,1858,1859,1860,1861,1862,1863,1864,1865,1866,1867,1868,1869,1870,1871,1872,1873,1874,1875,1876,1877,1878,1879,1880,1881,1882,1883,1884,1885,1886,1887,1888,1889,1890,1891,1892,1893,1894,1895,1896,1897,1898,1899,1900,1901,1902,1903,1904,1905,1906,1907,1908,1909,1910,1911,1912,1913,1914,1915,1916,1917,1918,1919,1920,1921,1922,1923,1924,1925,1926,1927,1928,1929,1930,1931,1932,1933,1934,1935,1936,1937,1938,1939,1940,1941,1942,1943,1944,1945,1946,1947,1948,1949,1950,1951,1952,1953,1954,1955,1956,1957,1958,1959,1960,1961,1962,1963,1964,1965,1966,1967,1968,1969,1970,1971,1972,1973,1974,1975,1976,1977,1978,1979,1980,1981,1982,1983,1984,1985,1986,1987,1988,1989,1990,1991,1992,1993,1994,1995,1996,1997,1998,1999,2000,2001,2002,2003,2004,2005,2006,2007,2008,2009,2010,2011,2012,2013,2014,2015,2016,2017,2018,2019,2020,2021,2022,2023,2024,2025,2026,2027,2028,2029,2030,2031,2032,2033,2034,2035,2036,2037,2038,2039,2040,2041,2042,2043,2044,2045,2046,2047,2048,2049,2050,2051,2052,2053,2054,2055,2056,2057,2058,2059,2060,2061,2062,2063,2064,2065,2066,2067,2068,2069,2070,2071,2072,2073,2074,2075,2076,2077,2078,2079,2080,2081,2082,2083,2084,2085,2086,2087,2088,2089,2090,2091,2092,2093,2094,2095,2096,2097,2098,2099,2100,2101,2102,2103,2104,2105,2106,2107,2108,2109,2110,2111,2112,2113,2114,2115,2116,2117,2118,2119,2120,2121,2122,2123,2124,2125,2126,2127,2128,2129,2130,2131,2132,2133,2134,2135,2136,2137,2138,2139,2140,2141,2142,2143,2144,2145,2146,2147,2148,2149,2150,2151,2152,2153,2154,2155,2156,2157,2158,2159,2160,2161,2162,2163,2164,2165,2166,2167,2168,2169,2170,2171,2172,2173,2174,2175,2176,2177,2178,2179,2180,2181,2182,2183,2184,2185,2186,2187,2188,2189,2190,2191,2192,2193,2194,2195,2196,2197,2198,2199,2200,2201,2202,2203,2204,2205,2206,2207,2208,2209,2210,2211,2212,2213,2214,2215,2216,2217,2218,2219,2220,2221,22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ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable, "R".

DATA ASSESSMENT:

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected ("R").

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ" (if %D or RSD >50%). If there is a gross deviation of %RSD and %D, the non-detects may be rejected ("R").

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchlorodate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

BWA - %D : Benzoic Acid 27%
di-n-octylphthalate 29%
2,4-dinitrophenol 28%
no action taken
all these
were not detected
in samples.

EOA - %D : Chloroethane 42% - no action
Methylene Chloride 29% - Approximate
methylene chloride for samples 19175 and 19177

Pesticide RSD: 4,4'-DDT exceeded criteria -
no action, nondetected in samples

%D: Endrin exceeded criteria -
no action, nondetected in samples

DATA ASSESSMENT:

6. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

ENA - 2 Acid surrogates failed contract
I9175 and I9177

Data for acid extractable compounds
for non-detected sample results were
rejected for the above samples

DATA ASSESSMENT:

7. INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ± 30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.

DATA ASSESSMENT:

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

BNA - Low spike recoveries for
phenol, 2-chlorophenol, and 4-chloro-3-
methyl phenol in sample I9175.
The detection limits for these compounds
were rejected in I9175.

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

12. CONTRACT PROBLEMS____NON-COMPLIANCE:

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

* If any blank values are above the IDL, Action levels which are 5x the highest concentration of that element's contamination in any blank are calculated.

Specific Actions

1. When the concentration is greater than the IDL, but less than the Action level, report the sample concentration detected with a "U."
2. When the sample concentration is greater than the Action level, report the sample concentration unqualified.

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SYRACUSE, N. Y.

SOP NO. HW-2

Evaluation of Metals Data for the Contract Laboratory Program (CLP)

based on

SOW. 7/87
REV. 12/87

(SOP Revision VIII)

PREPARED BY:

Hanif Sheikh
Hanif Sheikh, Quality Assurance Chemist
Toxic and Hazardous Waste Section

DATE:

2-14-89

CONCURRED BY:

Louis Bevilacqua
Louis Bevilacqua, Section Chief
Toxic and Hazardous Waste Section

DATE:

2/14/89

APPROVED BY:

Gerard F. McKenna
Gerard F. McKenna, Chief
Monitoring Management Branch

DATE:

2/15/89

Ind. 100-100000
Oct 1989

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Gerard F. McKenna, Chief
Monitoring Management Branch

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2/15/89

Title: Evaluation of Metals Data for the
Contract Laboratory Program

Date: Dec. 1988
Number: HW-2
Revision: 8

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 7/87.

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1).
The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2)
The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3)
This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Review Manager or Deputy Project Officer (DPO). Forward 5 copies: one each for internal files, appropriate Regional DPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to end of Data Assessment Narrative (Sec. A.2.2).

2.1.4 Data Summary Sheet - Summary of Inorganic Quality Control Data (Appendix A.5).
Enter on Data Summary Sheet all values from Forms I through IX. Circle all values out of control limits in red.

2.1.5 CLP Data Assessment Summary Forms

2.1.5.1 Appendix A.6
Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.5.2 Appendix A.7
Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

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- 2.1.6 Data Review Log: Each data reviewer will maintain a log of reviews completed to include:
- a. date of start of case review
 - b. date of completion of case review
 - c. site
 - d. case number
 - e. contract laboratory
 - f. number of samples
 - g. matrix
 - h. hours worked
 - i. reviewer's initials

The log is kept in MMB office.

- 2.1.7 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.8 Forwarded Paperwork

- 2.1.8.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:

- a. data package
- b. completed data assessment checklist (Appendix A.1, original)
- c. SMO Contract Compliance Screening (CCS)
- d. Data Summary Sheet (Appendix A.5) along with completed Data Assessment Narrative (Appendix A.2)
- e. Record of Communication (copy)
- f. CLP Reanalysis Request/Approval Record (original + 3 copies)
- g. Appendix A.7 (original).

- 2.1.8.2 Forward 4 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.7) and Telephone Record Log, if any, one each for appropriate Regional DPO, Sample Management Office (SMO), and last two addressees of Mailing List for Data Reviewers (Appendix A.4) (the Inorganic Data Assessment form does not go to the last two addressees).

- 2.1.9 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:

- a. completed Data Assessment Narrative (Appendix A.2)
- b. Telephone Record Log (copy)
- c. Data Summary Sheet - Summary of Inorganics Quality Control Data (copy) (Appendix A.5)
- d. Record of Communication (original)

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- e. SMO Report (copy)
- f. CLP Data Assessment Summary Form (Appendix A.6 and A.7).
- g. CLP Reanalysis Request/Approval Record (copy)
- h. checklist of Total Review (Appendix A.1).

3.0 Data Completeness

Indicate incomplete data package on the computer tracking sheet. Authorized contractor personnel may contact the laboratory contact after discovery of an incomplete data package. If a laboratory will not return phone calls or does not respond to requests, notify the DPO of the Region in which the laboratory is located.

- 4.0 Rejection of Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.
- 5.0 Acceptance Criteria - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 should be used. Additional guidance can be found in the National Inorganic Functional Guidelines.
- 6.0 SMO Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.
- 7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, DPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".
- 8.0 Record of Communication - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

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Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.1 <u>Contract Compliance Screening Report (CCS)</u> - Present?	—	—	✓
A.1.2 <u>Record of Communication (from RSCC)</u> - Present?	[]	—	✓
ACTION: If no, request from RSCC.			
A.1.3 <u>Sample Traffic Report</u> - Present or on file?	[✓]	—	—
Legible?	[✓]	—	—
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.4 <u>Cover Page</u> - Present?	[]	—	✓
Is cover page properly filled in and signed by the manager or the manager's designee?	[]	—	✓
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[]	—	✓
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[]	—	✓
(b) Form I's?	[]	—	✓
ACTION: If no for any of the above, contact RSCC for clarification.			
A.1.5 <u>Form I (Final Data)</u> - Are all Form I's present and complete?	[✓]	—	—
ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
Are correct units (ug/l for waters and mg/kg for soils) indicated in Form I's?	[✓]	—	—

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Are sample results for each parameter corrected for percent solids on solids?	<input checked="" type="checkbox"/>	___	___
Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Do any computation/transcription errors exceed 10% of reported values?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	___
Are all "less than IDL" values properly coded with "U"?	<input checked="" type="checkbox"/>	___	___
ACTION: If no for any of the above, prepare Telephone Record Log, and contract laboratory for corrected data.			
Was a brief physical description of samples given on Form I's?	<input checked="" type="checkbox"/>	___	___
Were the result qualifiers used correctly with final data?	<input checked="" type="checkbox"/>	___	___
Were any samples diluted beyond requirements of contract?	___	<input checked="" type="checkbox"/>	___
If yes, were dilutions noted on Form I's?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
ACTION: If no for any of the above, note under contract problem/non-compliance of the "Data Assessment Narrative".			

A.1.6 Holding Times - (aqueous samples)

(Examine sample traffic reports and digestion/distillation logs.)

Mercury (28 days). exceeded?	___	<input checked="" type="checkbox"/>	___
Cyanide (14 days). exceeded?	___	<input checked="" type="checkbox"/>	___
Other Metals (6 months). exceeded?	___	<input checked="" type="checkbox"/>	___
<u>Soil samples</u>			
Metals and Cyanide (6 months).....exceeded?	___	<input checked="" type="checkbox"/>	___

NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of analysis (from raw data). Attach to checklist.

Title: Evaluation of Metals for the Contract
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Appendix A.1: Data Assessment - Contract
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	<u>YES</u>	<u>NO</u>	<u>N/</u>
<u>ACTION:</u> If yes, reject (red-line) values less than Instrument Detection Limit (IDL); flag as estimated (J) the values above IDL.			
<u>A.1.7 Raw Data</u>			
A.1.7.1 Digestion Log* for flameAA/ICP present?	<input checked="" type="checkbox"/>	—	—
Digestion Log for furnace AA present?	<input checked="" type="checkbox"/>	—	—
Digestion Log for mercury present?	<input checked="" type="checkbox"/>	—	—
Digestion Log for cyanides present?	<input checked="" type="checkbox"/>	—	—
Are pH values (pH<2 for all metals, pH>12 for cyanide) present in Digestion/Distillation Logs?	<input checked="" type="checkbox"/>	—	—
*Weights, dilutions and volumes used to obtain values.			
Percent solids calculation present for soils/sediments?	<input checked="" type="checkbox"/>	—	—
Are preparation dates present on Digestion Log?	<input checked="" type="checkbox"/>	—	—
A.1.7.2 Measurement read out record present?	<input checked="" type="checkbox"/>	—	—
ICP	<input checked="" type="checkbox"/>	—	—
Flame AA	<input checked="" type="checkbox"/>	—	—
Furnace AA	<input checked="" type="checkbox"/>	—	—
Mercury	<input checked="" type="checkbox"/>	—	—
Cyanides	<input checked="" type="checkbox"/>	—	—
A.1.7.3 Are all raw data to support all sample analyses and QC operations present?	<input checked="" type="checkbox"/>	—	—
Legible?	<input checked="" type="checkbox"/>	—	—
Properly Labeled?	<input checked="" type="checkbox"/>	—	—
<u>ACTION:</u> If no for any of the above, write Telephone Record Log and contact laboratory.			

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

Date: Aug. 1988
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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8 <u>Data Validation and Verification</u>			
A.1.8.1 <u>Calibration</u>			
A.1.8.1.1 Is record of at least 2 point calibration present for ICP analysis?	<input checked="" type="checkbox"/>	—	—
Is record of 5 point calibration present for Hg analysis?	<input checked="" type="checkbox"/>	—	—
<u>ACTION:</u> If no for any of the above, write in the contract problem/non-compliance section of the "Data Assessment Narrative".			
A.1.8.1.2 Is record of 4 point calibration present for:			
Flame AA?	<input checked="" type="checkbox"/>	—	—
Furnace AA?	<input checked="" type="checkbox"/>	—	—
Cyanides?	<input checked="" type="checkbox"/>	—	—
<u>NOTE:</u> 1. If less than 4, other standards must be run immediately after calibration and be $\pm 5\%$ of true value. 2. For all AA and Cyanide analyses one calibration standard is at CRDL level.			
<u>ACTION:</u> Flag associated data as estimated if standards are not within $\pm 5\%$ of true values (except CRDL calibration standard).			
A.1.8.1.3 Is correlation coefficient less than 0.995 for:			
Mercury Analysis?	—	<input checked="" type="checkbox"/>	—
Cyanide Analysis?	—	<input checked="" type="checkbox"/>	—
Atomic Absorption Analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
<u>ACTION:</u> If yes, flag the associated data as estimated.			
A.1.8.2 <u>Form II A (Initial and Continuing Calibration Verification)-</u>			
A.1.8.2.1 Present and complete for every metal and cyanide?	<input checked="" type="checkbox"/>	—	—

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Present and complete for AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.8.2.2 Circle all values on data summary sheet that are outside of contract windows. Are all calibration standards (initial and continuing) within control limits?

Metals 90-110%	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
----------------	--------------------------	-------------------------------------	--------------------------

Hg - 80-120%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------	-------------------------------------	--------------------------	--------------------------

Cyanides 85-115%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------	-------------------------------------	--------------------------	--------------------------

Are all calibration standards (initial and continuing) within 50-150%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	-------------------------------------	--------------------------	--------------------------

ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard of 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ), if the ICV or CCV %R is 75-89%(CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV %R is outside the range 75-125% (CN, 70-130%; Hg, 65-135%).

Was continuing calibration performed every 10 samples or every 2 hours?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

ACTION: If no, flag the excess samples (eleventh and up) data as estimated (J).

A.1.8.3 Form II B (CRDL Standards for AA and ICP) -

A.1.8.3.1 Was a CRDL standard (CRA) analyzed for all AA metals (except Hg) and cyanide?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

Was a 2xCRDL or 2xIDL (when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for Al, Ba, Ca, Fe, Mg, Na, or K is not required.)

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

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YES NO N/A

ACTION: If no for any of the above, flag
estimated positive data falling
within the range (*true value \pm CRDL).

A.1.8.3.2 Was CRI analyzed after ICV/ICB and before the final
CCV/CCB, or every four hours of ICP run?

☒

ACTION: If no, write in Contract Problem/Non-Compliance
Section of the "Data Assessment Narrative".

A.1.8.3.3 Are CRA and CRI standards within control limits:

Metals 90 - 110?

☐

☒

Cyanide 85 - 115?

☒

☐

ACTION: Flag the affected data within the range of
true value \pm CRDL as estimated (J) if recovery
is less than 90% (for CN <85%); flag the positive
data within the range (true value \pm CRDL), if
recovery is greater than 110% (for CN >115%).

A.1.8.4 Form III (Initial and Continuing Calibration Blanks)

A.1.8.4.1 Present and complete?

☒

For both AA and ICP when both are used for same analyte?

☒

ACTION: If no, prepare Telephone Record Log and
contact laboratory.

A.1.8.4.2 Circle all calibration blank values on Data Summary Sheet
that are above IDL. Are all calibration blanks
(when IDL < CRDL) less than or equal to Contract Required
Detection Limits (CRDL)?

☒

Are all calibration blanks less than two times
Instrument Detection Limit (when IDL > CRDL)?

☒

ACTION: If no for any of the above, flag as estimated (J)
on form I's all data <5xIDL between calibration
blank with value over CRDL or IDL and nearest
good calibration blank. Flag five samples on either
side of the calibration blank.

*True value of CRA or CRI standard.

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.4.3 Was an initial calibration blank analyzed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (whichever is more frequent)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, flag as estimated (J) all values <5xIDL not analyzed within 5 samples of calibration blank.			
A.1.8.5 <u>FORM III (Preparation Blank) --</u>			
(Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.8.5.1 Was one prep. blank analyzed for: each 20 samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag as estimated (J) all associated positive data <10 IDLs for which prep.blank was not analyzed.			
<u>NOTE:</u> If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.5.2 Do concentrations of prep. blank fall below two times IDL when IDL is greater than CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, reject (red-line) all data that has a concentration less than 10 times the prep. blank value, but not flagged with a "U" (less than).			
A.1.8.5.3 Is concentration of prep. blank greater than CRDL when IDL is less than or equal to CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank value?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	<u>YES</u>	<u>NO</u>	<u>N/</u>
<p><u>ACTION:</u> If yes, reject (red-line) all associated data that has a concentration less than ten times the prep. blank value, but not flagged with a "U" (less than).</p>			
A.1.8.5.4 Is concentration of prep. blank below the negative CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p><u>ACTION:</u> If yes, reject (red-line) all associated data that has a concentration less than 10xCRDL.</p>			
<p>A.1.8.6 <u>Form IV (ICP Interference Check Sample)</u></p>			
A.1.8.6.1 Present and complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)</p>			
A.1.8.6.2 Circle all values on Data Summary Sheet that are more than + 20% of true or established mean value. Are all Interference Check Sample results inside of control limits (+ 20%)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, is concentration of Al, Ca, Fe, or Mg lower in sample than in ICS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p><u>ACTION:</u> If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150% ; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").</p>			
A.1.8.6.3 Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><u>ACTION:</u> If no, flag as estimated (J) all samples for which AL, Ca, Fe, or Mg is higher than in ICS.</p>			
<p>A.1.8.7 <u>Form V A (Spiked sample Recovery - Pre-Digestion/Pre-Distillation)-</u> (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)</p>			

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.7.1 Present and complete for: each 20 samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each conc. range (i.e. low, med., high)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
For both AA and ICP when both are used for same analyte?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag as estimated (J) all positive data less than four times spiking level for which spiked sample was not analyzed.			
<u>NOTE:</u> If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
1.8.7.2 Was field blank used for spiked sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, was field blank described as such on Traffic Report?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.8.7.3 Circle all values on Data Summary Sheet that are outside of control limits (75% to 125%). Are all recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, is sample concentration greater than or equal to four times spike concentration?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, write in the contract problem/non compliance section of "Data Assessment Narrative".			

* not for all samples

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A.1.8.7.4 Aqueous

YES NO N/A

Are any spike recoveries:

(a) less than 30%?

☒ ☐ ☐

(b) between 30-74%?

☒ ☐ ☐

(c) between 126-150%?

☐ ☒ ☐

(d) greater than 150%?

☐ ☒ ☐

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

NOTE: If pre-digestion spike result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, disregard spike recovery on Form V. Flag the associated data as estimated(J).

A.1.8.7.5 Soil/Sediment

Are any spike recoveries:

(a) less than 10%?

☐ ☒ ☐

(b) between 10-74%?

☒ ☐ ☐

(c) between 126-200%?

☐ ☒ ☐

(d) greater than 200%?

☐ ☒ ☐

ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".

A.1.8.8 Form VI (Lab Duplicates)

A.1.8.8.1 Present and complete for: each 20 samples?

☒ ☐ ☐

each matrix type?

☒ ☐ ☐

each concentration range (i.e. low, med., high)?

☒ ☐ ☐

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

Date: Dec. 1988
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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
both AA and ICP when both are used for same analyte?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any the above, flag as estimated (J) all data >CRDL for which duplicate sample was not analyzed.			
<u>Note:</u> If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.			
A.1.8.8.2 Was field blank used for duplicate analysis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, was field blank identified as such on Traffic Report?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes, flag all data >CRDL as estimated (J) for which field blank was used as duplicate.			
1.8.8.3 Circle all values on Data Summary Sheet that are outside control limits: Aqueous Samples (a) 20% RPD or (b) <u>±</u> CRDL Soil Samples (a) 35% RPD or (b) <u>±</u> CRDL			
Are all values within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, are all results outside the control limits flagged with an * on Form I's and VI?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, write in the contract problems/non- compliance section of "Data Assessment Narrative".			
<u>NOTE:</u> 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL. 2. If lab duplicate result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria. Flag the associated data as estimated.			
1.8.8.4 Is any value for sample duplicate pair less than CRDL and other value greater than or equal to 10 x CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject associated data.			

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.8.5 Aqueous			
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) all associated data.			
A.1.8.8.6 Soil/Sediment			
Is any RPD (where sample and duplicate are both greater than or equal to 5 times CRDL) : <u>>50%?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>>100%?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5xCRDL) :			
<u>>CRDL?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>>2xCRDL?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> Flag the associated data as estimated if RPD <u>>50%</u> or Diff. <u>>CRDL</u> ; reject data if RPD <u>>100%</u> or Diff. <u>>2xCRDL</u> .			
A.1.8.9 Field Duplicates			
A.1.8.9.1 Were field duplicates analyzed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, prepare a Form VI for each field duplicate pair, report concentrations of soils in ug/l on wet weight basis and calculate RPDs.			
<u>NOTE:</u> 1. Do not calculate RPD when both values are less than IDL. 2. Reject (red-line) all associated data only for field duplicates.			
1.8.9.2 Circle all values on Form VI for field duplicates that are outside control limits:			
Aqueous Samples (a) 20% RPD or (b) <u>+</u> CRDL			
Soil Samples (a) 35% RPD or (b) <u>+</u> CRDL			

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Appendix A.1: Data Assessment - Contract
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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Are all values within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A.1.8.9.3 Is any value for sample duplicate pair less than CRDL and other value greater than or equal to 10 x CRDL?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject associated data.			
A.1.8.9.4 <u>Aqueous</u>			
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) all associated data.			
A.1.8.9.5 <u>Soil/Sediment</u>			
Is any RPD (where sample and duplicate are both greater than 5 times CRDL) :			
<u>>50%</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>>100%</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5xCRDL) :			
<u>>CRDL?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>>2xCRDL?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> Flag the associated data as estimated if RPD>50% or Diff.>CRDL; reject data if RPD>100% or Diff.>2xCRDL.			
A.1.8.10 <u>Form VII (Laboratory Control Sample)</u> (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
A.1.8.10.1 Was one LCS prepared and analyzed for:			
every 20 water samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
every 20 solid samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Title: Evaluation of Metals Data for the
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Appendix A.1: Data Assessment - Contract
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YESNON/A

ACTION: If no for any of the above, prepare Telephone
Record Log and contact laboratory for submittal
of results of solid LCS. Flag as estimated(J)
all data for which LCS was not analyzed.

NOTE: If only one LCS was analyzed for more than 20
samples, then first 20 samples close to LCS
do not have to be flagged as estimated.

A.1.8.10.2 Aqueous

Circle all LCS values outside of control
limits(80 - 120%- except aqueous Ag and Sb).

Is any LCS recovery: less than 50%? []

between 50% and 79%? []

between 121% and 150%? []

greater than 150%? []

ACTION: Less than 50%, reject (red-line) all data;
between 50% and 79%, flag all associated data
as estimated (J); between 121% and 150%, flag
all positive (not flagged with a "U") results
as estimated; greater than 150%, reject all
positive results.

A.1.8.10.3 Solid LCS

NOTE: 1. If IDL of an analyte is equal to or greater than
True Value of LCS, disregard the following criteria.
2. If "Found" value of LCS is rejectable due to duplicate
injections or analytical spike recovery criteria,
disregard LCS recovery; flag the associated data as
estimated(J).

a. If the Solid LCS recovery for any analyte falls
outside EPA control limits, qualify all sample
results >IDL as estimated (J).

b. If the LCS results are higher than the control
limits and the sample results < IDL, the data
are acceptable.

c. If the LCS results are lower than the control
limits, qualify all sample results < IDL as
estimated(UJ).

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ACTION: Flag as estimated (J) all associated sample results equal to or greater than 10xIDLs for which percent difference is greater than 10% but less than 100%. Reject (red-line) all associated sample results equal to or greater than 10xIDLs for which PD is greater than or equal to 100%.

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Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.12 <u>Furnace Atomic Absorbtion (AA) QC Analysis</u>			
A.1.8.12.1 Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.8.12.2 Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Was a dilution analyzed for sample with post digestion spike recovery less than 40%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag all the associated data as estimated (J).			
A.1.8.12.3 Is *post digestion spike recovery less than 10% or greater than 150% for any result?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) the affected data if recovery is <10%; reject data not flagged with "U" if spike recovery is >150%.			
<u>NOTE :</u> Reject the data only if the affected sample was not subsequently analyzed by Method of Standard Addition.			
A.1.8.13 <u>Form VIII (Method of Standard Addition Results)</u>			
A.1.8.13.1 Present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, is any Form I result coded with "S" or a "+"?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.8.13.2 Is coefficient of correlation for MSA less than 0.990 for any sample?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) affected data.			

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* Post digestion spike is not required on the pre-digestion spiked sample when pre-digestion spike recovery is within control limits of 75-125% or when $SR \geq 4 \times SA$.

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Appendix A.1: Data Assessment - Contract
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	YES	NO	N/
A.1.8.13.3 Was *MSA required for any sample but not performed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is coefficient of correlation for MSA less than 0.995?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes for any of the above, flag all the associated data as estimated (J).			
A.1.8.13.4 Was proper quantitation procedure followed correctly as outlined in the SOW on page E-16 through E-17?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If no, note exception under contract problem/non-compliance of data assessment narrative, or prepare a separate list.			
A.1.8.14 <u>Dissolved/Total or Inorganic/Total Analytes -</u>			
A.1.8.14.1 Were any analyses performed for dissolved as well as total analytes on the same sample(s).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents.			
A.1.8.14.2 Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.8.14.3 Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE : Prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when both are above CRDL.

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* MSA is not required on LCS and area blank

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Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

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YES NO N/

ACTION: If more than 10%, flag both dissolved (or inorganic)
and total values as estimated (J); if more than
50%, reject (red-line) the data for both values.

A.1.8.15 Form I to IX

A.1.8.15.1 Are all the Form I through Form IX labeled with:

Laboratory name?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Case number?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
EPA sample No.?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
SDG No.?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Contract No.?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Correct units?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Matrix?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>

ACTION: If no for any of the above, note under
contract problem/non-compliance section of narrative.
of the "Data Assessment Narrative".

A.1.8.15.2 Do any computation/transcription errors exceed 10% of
reported values on Forms I-IX for:

(NOTE: Check all forms against raw data.)

(a) all analytes analyzed by ICP?	___	<input checked="" type="checkbox"/>	___
(b) all analytes analyzed by GFAA?	___	<input checked="" type="checkbox"/>	___
(c) all analytes analyzed by AA Flame?	___	<input type="checkbox"/>	___
(d) Mercury?	___	<input type="checkbox"/>	___
(e) Cyanide?	___	<input type="checkbox"/>	___

ACTION: If yes, prepare Telephone Log, contact laboratory
for corrected data and correct errors with red
pencil and initial.

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Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
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	<u>YES</u>	<u>NO</u>	<u>N/</u>
A.1.8.16 <u>Form I (Field Blank) -</u>			
Circle all field blank values on Data Summary Sheet that are greater than 2xIDL.			
Do concentrations of field blank(s) fall below two times IDLs for all parameters of associated aqueous and soil samples?	<input checked="" type="checkbox"/>	___	___
If no, was field blank value already rejected due to other QC criteria?	<input type="checkbox"/>	___	___
<u>ACTION:</u> If no, reject (red line) all associated aqueous and soil/sediment data (except field blank) that has a concentration less than five times the field blank value not flagged with a "U" (less than).			
A.1.8.17 <u>Form XI, XII, XIII (Quarterly Verification of Instrumental Parameters).</u>			
A.1.8.17.1 Is quarterly verification report present for:			
Instrument Detection Limits?	<input checked="" type="checkbox"/>	___	___
ICP Interelement Correction Factors?	<input checked="" type="checkbox"/>	___	___
ICP Linear Ranges?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, contact DPO of the lab.			
A.1.8.17.2 <u>Form XI (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)</u>			
Are IDLs present for:			
all the analytes?	<input checked="" type="checkbox"/>	___	___
all the instruments used?	<input checked="" type="checkbox"/>	___	___
For both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no for any of the above, prepare Telephone Record Log and contact laboratory.			

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Appendix A.1: Data Assessment - Contract
Compliance (Total Review - Inorganics)

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Is IDL greater than CRDL for any analyte?	___	[<input checked="" type="checkbox"/>]	___

If yes, is the concentration of the sample analyzed on
the instrument whose IDL exceeds CRDL, greater than
5 x IDL?

[<input type="checkbox"/>]	___	[<input checked="" type="checkbox"/>]
------------------------------	-----	---

MMB ACTION: If no, reject (red-line) all values less than
five times IDL of the instrument whose IDL
exceeds CRDL.

A.1.8.17.3 Form XII (Linear Ranges)

Was any sample result higher than high linear range
of ICP by more than 10%?

[<input checked="" type="checkbox"/>]	[<input type="checkbox"/>]	___
---	------------------------------	-----

Was any sample result higher than the highest
calibration standard for non-ICP parameters?

[<input checked="" type="checkbox"/>]	[<input type="checkbox"/>]	___
---	------------------------------	-----

If yes for any of the above, was dilution performed
on the sample to bring raw data in linear range or
below the highest standard.

[<input type="checkbox"/>]	___	___
------------------------------	-----	-----

MMB ACTION: If no, flag the result reported on Form I
as estimated(J).

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Title: Evaluation of Metals Data for the
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Appendix A.2: Data Assessment Narrative

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A.2.1 (continuation)

A.2.2 Contract Problems/Non-compliance

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: _____ Date: _____
Signature

Verified by: _____ Date: _____

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.3: Contract Non-Compliance
(SMO Report)

Date: Dec. 1988
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CONTRACT NON-COMPLIANCE
(SMO REPORT)

Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO. _____

The hardcopied (laboratory name) _____
Inorganic data package received at Region II has been reviewed and the quality assurance
and performance data summarized. The data reviewed included:

SMO Sample No.: _____

Conc. & Matrix: _____

Contract No. WA87-K025,K026,K027(SOW787) requires that specific analytical work be done and
that associated reports be provided by the contractor to the Regions, EMSL-LV, and SMO. The
general criteria used to determine the performance were based on an examination of:

- Data Completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments: _____

Reviewer's Initial

Date

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.4: Mailing List for Data Reviewers

Date: Dec. 1988
Number: HW-2
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DFO/MAILING LIST FOR DATA REVIEWERS

1. USEPA Region I (ESD)
60 Westview Street
Lexington, MA 02173
Deb Szaro
(617) 861-4312
CT, ME, MA, NH, RI, VT
2. USEPA Region II (ESD)
Woodbridge Avenue
Edison, New Jersey 08837
Lisa Gatton Vidulich
(201) 321-6676
NJ, NY, PR, VI
3. USEPA Region III (CRL)
839 Bestgate Road
Annapolis, MD 21401
Chuck Sands
(301) 266-9180
DE, MD, PA, VA, WV, DC
4. USEPA Region IV (ESD)
Analytical Support Branch
College Station Road
Athens, GA 30613
Tom Bennett, Jr.
(404) 546-3112
AL, FL, GA, KY, MS, NC, SC, TN
5. USEPA Region V (ESD)
536 South Clark Street
Tenth Floor, CRL
Chicago, IL 60605
Pat Churilla
312-353-9087
IL, IN, MI, MN, OH, WI
6. USEPA Region VI (ESD)
Monterey Park Plaza, Bldg. C
6608 Hornwood Drive
Houston, TX 77074
David Stockton
(713) 953-3425
AL, LA, NM, TX, OK
7. USEPA Region VII Laboratory
25 Funston Road
Kansas City, KS 66115
Debra Morey
(913) 236-3881
IO, KS, NB, MO
8. USEPA Region VIII Laboratory
BOX 25366
Denver Federal Center
Lakewood, CO 80225
Eva Hoffman
(303) 236-7371
CO, ND, SD, UT, WY, MT
9. USEPA Region IX (ESD)
QA Management Section
215 Fremont Street
San Francisco, CA 94105
Kent Kitchingman
(415) 974-0924
AZ, CA, HI, NV, American Samoa,
Guam Trust Territories of Pacific
Islands, Wake Island
10. USEPA Region X Laboratory
P.O. BOX 549
Manchester, WA 98353
Gerald Mith
(206) 442-0370
AK, ID, OR, WA
11. Sample Management Office
Viari and Company
P.O. BOX 818
Alexandria, VA 22313
12. Edward Kantor
USEPA
EMSL-LV
944 E. Harmon Avenue
BOX 93478
Las Vegas, NV 89119
13. Duane Gauder - (OS-230)
USEPA
401 "M" Street, S.W.
Washington, DC 20460

ATTACHMENT 2

Title: Evaluation of Metals Data for the
Contract Laboratory Program

Date: Dec. 1988
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1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 7/87.

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1).
The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2)
The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3)
This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Review Manager or Deputy Project Officer (DPO). Forward 5 copies: one each for internal files, appropriate Regional DPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to end of Data Assessment Narrative (Sec. A.2.2).

2.1.4 Data Summary Sheet - Summary of Inorganic Quality Control Data (Appendix A.5).
Enter on Data Summary Sheet all values from Forms I through IX. Circle all values out of control limits in red.

2.1.5 CLP Data Assessment Summary Forms

2.1.5.1 Appendix A.6
Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.5.2 Appendix A.7
Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

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Contract Laboratory Program

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- 2.1.6 Data Review Log: Each data reviewer will maintain a log of reviews completed to include:
- a. date of start of case review
 - b. date of completion of case review
 - c. site
 - d. case number
 - e. contract laboratory
 - f. number of samples
 - g. matrix
 - h. hours worked
 - i. reviewer's initials

The log is kept in MMB office.

- 2.1.7 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.8 Forwarded Paperwork

- 2.1.8.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:

- a. data package
- b. completed data assessment checklist (Appendix A.1, original)
- c. SMO Contract Compliance Screening (CCS)
- d. Data Summary Sheet (Appendix A.5) along with completed Data Assessment Narrative (Appendix A.2)
- e. Record of Communication (copy)
- f. CLP Reanalysis Request/Approval Record (original + 3 copies)
- g. Appendix A.7 (original).

- 2.1.8.2 Forward 4 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.7) and Telephone Record Log, if any, one each for appropriate Regional DPO, Sample Management Office (SMO), and last two addressees of Mailing List for Data Reviewers (Appendix A.4) (the Inorganic Data Assessment form does not go to the last two addressees).

- 2.1.9 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:

- a. completed Data Assessment Narrative (Appendix A.2)
- b. Telephone Record Log (copy)
- c. Data Summary Sheet - Summary of Inorganics Quality Control Data (copy) (Appendix A.5)
- d. Record of Communication (original)

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- e. SMO Report (copy)
- f. CLP Data Assessment Summary Form (Appendix A.6 and A.7).
- g. CLP Reanalysis Request/Approval Record (copy)
- h. checklist of Total Review (Appendix A.1).

3.0 Data Completeness

Indicate incomplete data package on the computer tracking sheet. Authorized contractor personnel may contact the laboratory contact after discovery of an incomplete data package. If a laboratory will not return phone calls or does not respond to requests, notify the DPO of the Region in which the laboratory is located.

- 4.0 Rejection of Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.
- 5.0 Acceptance Criteria - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 should be used. Additional guidance can be found in the National Inorganic Functional Guidelines.
- 6.0 SMO Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.
- 7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, DPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".
- 8.0 Record of Communication - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.1 <u>Contract Compliance Screening Report (CCS)</u> - Present?	—	—	✓
A.1.2 <u>Record of Communication (from RSCC)</u> - Present?	[]	—	✓
ACTION: If no, request from RSCC.			
A.1.3 <u>Sample Traffic Report</u> - Present or on file?	[✓]	—	—
Legible?	[✓]	—	—
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.4 <u>Cover Page</u> - Present?	[]	—	✓
Is cover page properly filled in and signed by the manager or the manager's designee?	[]	—	✓
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[]	—	✓
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[]	—	✓
(b) Form I's?	[]	—	✓
ACTION: If no for any of the above, contact RSCC for clarification.			
A.1.5 <u>Form I (Final Data)</u> - Are all Form I's present and complete?	[✓]	—	—
ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
Are correct units (ug/l for waters and mg/kg for soils) indicated in Form I's?	[✓]	—	—

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Are sample results for each parameter corrected for percent solids on solids?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Do any computation/transcription errors exceed 10% of reported values?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are all "less than IDL" values properly coded with "U"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: If no for any of the above, prepare Telephone Record Log, and contract laboratory for corrected data.			
Was a brief physical description of samples given on Form I's?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were the result qualifiers used correctly with final data?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were any samples diluted beyond requirements of contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, were dilutions noted on Form I's?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: If no for any of the above, note under contract problem/non-compliance of the "Data Assessment Narrative".			

A.1.6 Holding Times - (aqueous samples)

(Examine sample traffic reports and digestion/distillation logs.)

Mercury (28 days). exceeded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cyanide (14 days). exceeded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other Metals (6 months). exceeded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>Soil samples</u>		
Metals and Cyanide (6 months).....exceeded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of analysis (from raw data). Attach to checklist.

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YES NO N/A

ACTION: If yes, reject (red-line) values less than
Instrument Detection Limit (IDL); flag as
estimated (J) the values above IDL.

A.1.7 Raw Data

A.1.7.1 Digestion Log* for flameAA/ICP present? ☒ ☐ ☐

Digestion Log for furnace AA present? ☒ ☐ ☐

Digestion Log for mercury present? ☐ ☐ ☒

Digestion Log for cyanides present? ☐ ☐ ☒

Are pH values (pH<2 for all metals, pH>12 for cyanide)
present in Digestion/Distillation Logs? ☒ ☐ ☐

*Weights, dilutions and volumes used to obtain values.

Percent solids calculation present for soils/sediments? ☐ ☒ ☐

Are preparation dates present on Digestion Log? ☒ ☐ ☐

A.1.7.2 Measurement read out record present?

ICP

☒ ☐ ☐

Flame AA

☒ ☐ ☐

Furnace AA

☒ ☐ ☐

Mercury

☐ ☐ ☒

Cyanides

☐ ☐ ☒

A.1.7.3 Are all raw data to support all sample analyses and
QC operations present? ☒ ☐ ☐

Legible? ☒ ☐ ☐

Properly Labeled? ☒ ☐ ☐

ACTION: If no for any of the above, write Telephone
Record Log and contact laboratory.

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8 <u>Data Validation and Verification</u>			
A.1.8.1 <u>Calibration</u>			
A.1.8.1.1 Is record of at least 2 point calibration present for ICP analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is record of 5 point calibration present for Hg analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If no for any of the above, write in the contract problem/non-compliance section of the "Data Assessment Narrative".			
A.1.8.1.2 Is record of 4 point calibration present for:			
Flame AA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Furnace AA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyanides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>NOTE:</u> 1. If less than 4, other standards must be run immediately after calibration and be + 5% of true value. 2. For all AA and Cyanide analyses one calibration standard is at CRDL level.			
<u>ACTION:</u> Flag associated data as estimated if standards are not within +5% of true values (except CRDL calibration standard).			
A.1.8.1.3 Is correlation coefficient less than 0.995 for:			
Mercury Analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cyanide Analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Atomic Absorption Analysis?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, flag the associated data as estimated.			
A.1.8.2 <u>Form II A (Initial and Continuing Calibration Verification)-</u>			
A.1.8.2.1 Present and complete for every metal and cyanide?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Present and complete for AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no for any of the above, prepare Telephone Record Log and contact laboratory.			
A.1.8.2.2 Circle all values on data summary sheet that are outside of contract windows. Are all calibration standards (initial and continuing) within control limits?			
Metals 90-110%	<input type="checkbox"/>	<input checked="" type="checkbox"/>	___
Hg - 80-120%	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Cyanides 85-115%	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
Are all calibration standards (initial and continuing) within 50-150%?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard of 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ), if the ICV or CCV %R is 75-89%(CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV %R is outside the range 75-125% (CN, 70-130%; Hg, 65-135%).			
Was continuing calibration performed every 10 samples or every 2 hours?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, flag the excess samples (eleventh and up) data as estimated (J).			
A.1.8.3 <u>Form II B (CRDL Standards for AA and ICP) -</u>			
A.1.8.3.1 Was a CRDL standard (CRA) analyzed for all AA metals (except Hg) and cyanide?			
	<input checked="" type="checkbox"/>	___	___
Was a 2xCRDL or 2xIDL (when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for Al, Ba, Ca, Fe, Mg, Na, or K is not required.)	<input checked="" type="checkbox"/>	___	___

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
<u>ACTION:</u> If no for any of the above, flag estimated positive data falling within the range (*true value \pm CRDL).			
A.1.8.3.2 Was CRI analyzed after ICV/ICB and before the final CCV/CCB, or every four hours of ICP run?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.8.3.3 Are CRA and CRI standards within control limits:			
Metals 90 - 110?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cyanide 85 - 115?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> Flag the affected data within the range of true value \pm CRDL as estimated (J) if recovery is less than 90% (for CN <85%); flag the positive data within the range (true value \pm CRDL), if recovery is greater than 110% (for CN >115%).			
A.1.8.4 <u>Form III (Initial and Continuing Calibration Blanks)</u>			
A.1.8.4.1 Present and complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, prepare Telephone Record Log and contact laboratory.			
A.1.8.4.2 Circle all calibration blank values on Data Summary Sheet that are above IDL. Are all calibration blanks (when IDL < CRDL) less than or equal to Contract Required Detection Limits (CRDL)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are all calibration blanks less than two times Instrument Detection Limit (when IDL > CRDL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag as estimated (J) on form I's all data <5xIDL between calibration blank with value over CRDL or IDL and nearest good calibration blank. Flag five samples on either side of the calibration blank.			

*True value of CRA or CRI standard.

If any blank values are above the IDL, Action levels which are 5x the highest concentration of that element's contamination in any blank are calculated.

Specific Actions

When the concentration is greater than the IDL, but less than the Action level report the sample concentration detected with a "U"

2. When the sample concentration is greater than the Action level, report the sample concentration unqualified.

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A.1.8.4.3 Was an initial calibration blank analyzed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (whichever is more frequent)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, flag as estimated (J) all values <5xIDL not analyzed within 5 samples of calibration blank.			
A.1.8.5 <u>FORM III (Preparation Blank) --</u>			
(Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.8.5.1 Was one prep. blank analyzed for: each 20 samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag as estimated (J) all associated positive data <10 IDLs for which prep.blank was not analyzed.			
<u>NOTE:</u> If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.5.2 Do concentrations of prep. blank fall below two times IDL when IDL is greater than CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, reject (red-line) all data that has a concentration less than 10 times the prep. blank value, but not flagged with a "U" (less than).			
A.1.8.5.3 Is concentration of prep. blank greater than CRDL when IDL is less than or equal to CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank value?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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YES NO N/A

ACTION: If yes, reject (red-line) all associated data that has a concentration less than ten times the prep. blank value, but not flagged with a "U" (less than).

A.1.8.5.4 Is concentration of prep. blank below the negative CRDL? [✓]

ACTION: If yes, reject (red-line) all associated data that has a concentration less than 10xCRDL.

A.1.8.6 Form IV (ICP Interference Check Sample)

A.1.8.6.1 Present and complete? [✓]

(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)

A.1.8.6.2 Circle all values on Data Summary Sheet that are more than + 20% of true or established mean value. Are all Interference Check Sample results inside of control limits (+ 20%)? [✓]

If no, is concentration of Al, Ca, Fe, or Mg lower in sample than in ICS? []

ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150% ; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").

A.1.8.6.3 Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)? [✓]

ACTION: If no, flag as estimated (J) all samples for which AL, Ca, Fe, or Mg is higher than in ICS.

A.1.8.7 Form V A (Spiked sample Recovery - Pre-Digestion/Pre-Distillation)-
(Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.7.1 Present and complete for: each 20 samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each conc. range (i.e. low, med., high)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
For both AA and ICP when both are used for same analyte?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag as estimated (J) all positive data less than four times spiking level for which spiked sample was not analyzed.			
<u>NOTE:</u> If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.8.7.2 Was field blank used for spiked sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If yes, was field blank described as such on Traffic Report?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.8.7.3 Circle all values on Data Summary Sheet that are outside of control limits (75% to 125%). Are all recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If no, is sample concentration greater than or equal to four times spike concentration?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, write in the contract problem/non compliance section of "Data Assessment Narrative".			

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A.1.8.7.4 Aqueous

YES NO N/A

Are any spike recoveries:

(a) less than 30%?

☒ ☐ ☐

(b) between 30-74%?

☒ ☐ ☐

(c) between 126-150%?

☐ ☒ ☐

(d) greater than 150%?

☐ ☒ ☐

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

NOTE: If pre-digestion spike result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, disregard spike recovery on Form V. Flag the associated data as estimated(J).

A.1.8.7.5 Soil/Sediment

Are any spike recoveries:

(a) less than 10%?

☐ ☒ ☐

(b) between 10-74%?

☐ ☒ ☐

(c) between 126-200%?

☐ ☒ ☐

(d) greater than 200%?

☒ ☐ ☐

ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".

A.1.8.8 Form VI (Lab Duplicates)

A.1.8.8.1 Present and complete for: each 20 samples?

☒ ☐ ☐

each matrix type?

☒ ☐ ☐

each concentration range (i.e. low, med., high)?

☐ ☐ ☒

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
both AA and ICP when both are used for same analyte?	[]	<input checked="" type="checkbox"/>	___
<u>ACTION:</u> If no for any the above, flag as estimated (J) all data >CRDL for which duplicate sample was not analyzed.			
<u>Note:</u> If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.			
A.1.8.8.2 Was field blank used for duplicate analysis?	___	<input checked="" type="checkbox"/>	___
If yes, was field blank identified as such on Traffic Report?	___	[]	<input checked="" type="checkbox"/>
<u>ACTION:</u> If yes, flag all data >CRDL as estimated (J) for which field blank was used as duplicate.			
A.1.8.8.3 Circle all values on Data Summary Sheet that are outside control limits:			
Aqueous Samples (a) 20% RPD or (b) <u>+</u> CRDL			
Soil Samples (a) 35% RPD or (b) <u>+</u> CRDL			
Are all values within control limits?	[]	<input checked="" type="checkbox"/>	___
If no, are all results outside the control limits flagged with an * on Form I's and VI?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, write in the contract problems/non- compliance section of "Data Assessment Narrative".			
<u>NOTE:</u> 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.			
2. If lab duplicate result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria. Flag the associated data as estimated.			
A.1.8.8.4 Is any value for sample duplicate pair less than CRDL and other value greater than or equal to 10 x CRDL?	___	<input checked="" type="checkbox"/>	___
<u>ACTION:</u> If yes, reject associated data.			

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.8.5 Aqueous			
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times CRDL?	___	<input checked="" type="checkbox"/>	___
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	___
<u>ACTION:</u> If yes, reject (red-line) all associated data.			
A.1.8.8.6 Soil/Sediment			
Is any RPD (where sample and duplicate are both greater than or equal to 5 times CRDL) : <u>>50%</u> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	___
<u>>100%</u> ?	___	<input checked="" type="checkbox"/>	___
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5xCRDL) :			
<u>>CRDL?</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	___
<u>>2xCRDL?</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	___
<u>ACTION:</u> Flag the associated data as estimated if RPD <u>>50%</u> or Diff. <u>>CRDL</u> ; reject data if RPD <u>>100%</u> or Diff. <u>>2xCRDL</u> .			
A.1.8.9 Field Duplicates			
A.1.8.9.1 Were field duplicates analyzed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	___
<u>ACTION:</u> If yes, prepare a Form VI for each field duplicate pair, report concentrations of soils in ug/l on wet weight basis and calculate RPDs.			
<u>NOTE:</u> 1. Do not calculate RPD when both values are less than IDL. 2. Reject (red-line) all associated data only for field duplicates.			
A.1.8.9.2 Circle all values on Form VI for field duplicates that are outside control limits:			
Aqueous Samples (a) 20% RPD or (b) <u>+</u> CRDL			
Soil Samples (a) 35% RPD or (b) <u>+</u> CRDL			

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Are all values within control limits?	[]	—	✓
A.1.8.9.3 Is any value for sample duplicate pair less than CRDL and other value greater than or equal to 10 x CRDL?	—	[]	✓
<u>ACTION:</u> If yes, reject associated data.			
A.1.8.9.4 <u>Aqueous</u>			
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times CRDL?	—	[]	✓
Is any difference between sample and duplicate greater than CRDL where sample and/or duplicate is less than 5 times CRDL?	—	[]	✓
<u>ACTION:</u> If yes, reject (red-line) all associated data.			
A.1.8.9.5 <u>Soil/Sediment</u>			
Is any RPD (where sample and duplicate are both greater than 5 times CRDL) :			
<u>>50%</u>	—	[]	✓
<u>>100%</u>	—	[]	✓
Is any difference between sample and duplicate (where sample and/or duplicate is less than 5xCRDL) :			
<u>>CRDL?</u>	—	[]	✓
<u>>2xCRDL?</u>	—	[]	✓
<u>ACTION:</u> Flag the associated data as estimated if RPD>50% or Diff.>CRDL; reject data if RPD>100% or Diff.>2xCRDL.			
A.1.8.10 <u>Form VII (Laboratory Control Sample)</u> (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
NLI 001 1254			
A.1.8.10.1 Was one LCS prepared and analyzed for:			
every 20 water samples?	[✓]	—	—
every 20 solid samples?	[✓]	—	—
both AA and ICP when both are used for same analyte?	[✓]	—	—

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YES NO N/A

ACTION: If no for any of the above, prepare Telephone
Record Log and contact laboratory for submittal
of results of solid LCS. Flag as estimated(J)
all data for which LCS was not analyzed.

NOTE: If only one LCS was analyzed for more than 20
samples, then first 20 samples close to LCS
do not have to be flagged as estimated.

A.1.8.10.2 Aqueous

Circle all LCS values outside of control
limits(80 - 120%- except aqueous Ag and Sb).

Is any LCS recovery: less than 50%? ☒

 between 50% and 79%? ☒

 between 121% and 150%? ☒

 greater than 150%? ☒

ACTION: Less than 50%, reject (red-line) all data;
between 50% and 79%, flag all associated data
as estimated (J); between 121% and 150%, flag
all positive (not flagged with a "U") results
as estimated; greater than 150%, reject all
positive results.

A.1.8.10.3 Solid LCS

NOTE: 1. If IDL of an analyte is equal to or greater than
True Value of LCS, disregard the following criteria.
2. If "Found" value of LCS is rejectable due to duplicate
injections or analytical spike recovery criteria,
disregard LCS recovery; flag the associated data as
estimated(J).

a. If the Solid LCS recovery for any analyte falls
outside EPA control limits, qualify all sample
results >IDL as estimated (J).

b. If the LCS results are higher than the control
limits and the sample results < IDL, the data
are acceptable.

c. If the LCS results are lower than the control
limits, qualify all sample results < IDL as
estimated(UJ).

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NLI 001 1256

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	YES	NO	N/A
A.1.8.12 <u>Furnace Atomic Absorbtion (AA) QC Analysis</u>			
A.1.8.12.1 Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.8.12.2 Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Was a dilution analyzed for sample with post digestion spike recovery less than 40%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If no for any of the above, flag all the associated data as estimated (J).			
.1.8.12.3 Is *post digestion spike recovery less than 10% or greater than 150% for any result?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) the affected data if recovery is <10%; reject data not flagged with "U" if spike recovery is >150%.			
<u>NOTE :</u> Reject the data only if the affected sample was not subsequently analyzed by Method of Standard Addition.			
A.1.8.13 <u>Form VIII (Method of Standard Addition Results)</u>			
A.1.8.13.1 Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, is any Form I result coded with "S" or a "+"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.8.13.2 Is coefficient of correlation for MSA less than 0.990 for any sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>ACTION:</u> If yes, reject (red-line) affected data.			

* Post digestion spike is not required on the pre-digestion spiked sample when pre-digestion spike recovery is within control limits of 75-125% or when $SR > 4 \times SA$.

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YES NO N/A

A.1.8.13.3 Was *MSA required for any sample but not performed?

☒ ☐ ☐

Is coefficient of correlation for MSA less than 0.995?

☐ ☒ ☐

Are MSA calculations outside the linear range of the
calibration curve generated at the beginning of the
analytical run?

☐ ☒ ☐

ACTION: If yes for any of the above, flag all
the associated data as estimated (J).

A.1.8.13.4 Was proper quantitation procedure followed correctly
as outlined in the SOW on page E-16 through E-17?

☒ ☐ ☐

ACTION: If no, note exception under contract problem/non-
compliance of data assessment narrative, or
prepare a separate list.

A.1.8.14 Dissolved/Total or Inorganic/Total Analytes -

A.1.8.14.1 Were any analyses performed for dissolved as well as
total analytes on the same sample(s).

☐ ☒ ☐

Were any analyses performed for inorganic as well as total
(organic + inorganic) analytes on the same sample(s)?

☐ ☐ ☒

If yes, apply the following questions only if
inorganic (or dissolved) results are (i) above
CRDL, and (ii) greater than total constituents.

A.1.8.14.2 Is the concentration of any dissolved (or inorganic)
analyte greater than its total concentration by
more than 10%?

☐ ☐ ☒

A.1.8.14.3 Is the concentration of any dissolved (or inorganic)
analyte greater than its total concentration by
more than 50%?

☐ ☐ ☒

NOTE : Prepare a list comparing differences
between all dissolved (or inorganic) and
total analytes. Compute the differences
as a percent of the total analyte only
when both are above CRDL.

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YES NO N/A

ACTION: If more than 10%, flag both dissolved (or inorganic)
and total values as estimated (J); if more than
50%, reject (red-line) the data for both values.

A.1.8.15 Form I to IX

A.1.8.15.1 Are all the Form I through Form IX labeled with:

Laboratory name?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Case number?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
EPA sample No.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SDG No.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Contract No.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Correct units?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Matrix?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: If no for any of the above, note under
contract problem/non-compliance section of narrative.
of the "Data Assessment Narrative".

A.1.8.15.2 Do any computation/transcription errors exceed 10% of
reported values on Forms I-IX for:

(NOTE: Check all forms against raw data.)

(a) all analytes analyzed by ICP?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(b) all analytes analyzed by GFAA?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(c) all analytes analyzed by AA Flame?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(d) Mercury?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(e) Cyanide?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: If yes, prepare Telephone Log, contact laboratory
for corrected data and correct errors with red
pencil and initial.

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.8.16 <u>Form I (Field Blank) -</u>			
Circle all field blank values on Data Summary Sheet that are greater than 2xIDL. Do concentrations of field blank(s) fall below two times IDLs for all parameters of associated aqueous and soil samples?	<input checked="" type="checkbox"/>	___	___
If no, was field blank value already rejected due to other QC criteria?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
<u>ACTION:</u> If no, reject (red line) all associated aqueous and soil/sediment data (except field blank) that has a concentration less than five times the field blank value not flagged with a "U" (less than).			
A.1.8.17 <u>Form XI, XII, XIII (Quarterly Verification of Instrumental Parameters).</u>			
A.1.8.17.1 Is quarterly verification report present for:			
Instrument Detection Limits?	<input checked="" type="checkbox"/>	___	___
ICP Interelement Correction Factors?	<input checked="" type="checkbox"/>	___	___
ICP Linear Ranges?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, contact DPO of the lab.			
A.1.8.17.2 <u>Form XI (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)</u>			
Are IDLs present for: all the analytes?	<input checked="" type="checkbox"/>	___	___
all the instruments used?	<input checked="" type="checkbox"/>	___	___
For both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no for any of the above, prepare Telephone Record Log and contact laboratory.			

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A.2.1 All data are of acceptable quality? Yes _____ No _____

[illegible]

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A.2.2 Contract Problems/Non-compliance

Verified by: _____ Date: _____

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Appendix A.3: Contract Non-Compliance
(SMO Report)

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CONTRACT NON-COMPLIANCE
(SMO REPORT)

Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO. _____

The hardcopied (laboratory name) _____
inorganic data package received at Region II has been reviewed and the quality assurance
and performance data summarized. The data reviewed included:

SMO Sample No.: _____

Conc. & Matrix: _____

Contract No. WA87-K025,K026,K027(SOW787) requires that specific analytical work be done and
that associated reports be provided by the contractor to the Regions, EMSL-LV, and SMO. The
general criteria used to determine the performance were based on an examination of:

- Data Completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments: _____

Reviewer's Initial

Date

Title: Evaluation of Metals Data for the
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Appendix A.4: Mailing List for Data Reviewers

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DEO/MAILING LIST FOR DATA REVIEWERS

1. USEPA Region I (ESD)
60 Westview Street
Lexington, MA 02173
Deb Szaro
(617) 861-4312
CT, ME, MA, NH, RI, VT
2. USEPA Region II (ESD)
Woodbridge Avenue
Edison, New Jersey 08837
Lisa Gatton Vidulich
(201) 321-6676
NJ, NY, PR, VI
3. USEPA Region III (CRL)
839 Bestgate Road
Annapolis, MD 21401
Chuck Sands
(301) 266-9180
DE, MD, PA, VA, WV, DC
4. USEPA Region IV (ESD)
Analytical Support Branch
College Station Road
Athens, GA 30613
Tom Bennett, Jr.
(404) 546-3112
AL, FL, GA, KY, MS, NC, SC, TN
5. USEPA Region V (ESD)
536 South Clark Street
Tenth Floor, CRL
Chicago, IL 60605
Pat Churilla
312-353-9087
IL, IN, MI, MN, OH, WI
6. USEPA Region VI (ESD)
Monterey Park Plaza, Bldg. C
6608 Hornwood Drive
Houston, TX 77074
David Stockton
(713) 953-3425
AL, LA, NM, TX, OK
7. USEPA Region VII Laboratory
25 Funston Road
Kansas City, KS 66115
Debra Morey
(913) 236-3881
IO, KS, NE, MO
8. USEPA Region VIII Laboratory
BOX 25366
Denver Federal Center
Lakewood, CO 80225
Eva Hoffman
(303) 236-7371
CO, ND, SD, UT, WY, MT
9. USEPA Region IX (ESD)
QA Management Section
215 Fremont Street
San Francisco, CA 94105
Kent Kitchingman
(415) 974-0924
AZ, CA, HI, NV, American Samoa,
Guam Trust Territories of Pacific
Islands, Wake Island
10. USEPA Region X Laboratory
P.O. BOX 549
Manchester, WA 98353
Gerald Muth
(206) 442-0370
AK, ID, OR, WA
11. Sample Management Office
Viar and Company
P.O. BOX 818
Alexandria, VA 22313
12. Edward Kantor
USEPA
EMSL-LV
944 E. Harmon Avenue
BOX 93478
Las Vegas, NV 89119
13. Duane Gauder - (OS-230)
USEPA
401 "M" Street, S.W.
Washington, DC 20460

Title: Evaluation of Metals Data for the
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Appendix A.5: Summary of Inorganics
Quality Control Data

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SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: _____ CASE NO. _____ SOW NO. _____ SAMPLE TYPE: _____

SITE/STUDY DESCRIPTION: _____ SAMPLE NOS: _____

FIELD DUP. #'S: _____ LAB DUP. #'S: _____ Field Blank _____ MATRIX SPIKE #: _____

SERIAL DILUTION SAMPLE NO. _____ COMPLETION DATE: _____ REVIEWERS INITIALS: _____

XI		I		IIA			IIB		III			IV			V		VI VII		IX			
Parameter	Detection Limits UG/L		Field Blank	Calib. Var. XR			CRDL Std Ver. Z R		Calibration Blanks			P B R L		ICP ICS Z R		M S t p		Lab Dup		Ser Dil		M e t h
	CRDL	IDL		Continued			Init	Fin	Continued			E A P N	Init	Fin	r i x k	RPD	Z R	Z D				
				Init	1	2			3	Init	1								2	3		
Al	200																					
Sb	60																					
As	10																					
Ba	200																					
Be	5																					
Cd	5																					
Ca	5000																					
Cr	10																					
Co	30																					
Cu	25																					
Fe	100																					
Pb	5																					
Hg	5000																					
Mn	15																					
Hg	0.2																					
Ni	40																					
K	5000																					
Se	5																					
Ag	10																					
Na	5000																					
Tl	10																					
V	50																					
Zn	20																					
CN	10																					

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Appendix A.6: CLP Data Assessment
Summary Form (Inorganics)

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CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: _____ Date: _____ Case #: _____

Lab Name: _____

Reviewer's Initials: _____ Number of Samples: _____

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration	Prep Blank	Field Blank	Inter- ferences	Spike Recovery	Duplicates Lab/Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
As AA													
Furnace AA													
Total													
Er													

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*

CP													
As AA													
Furnace AA													
Curry													
Total													
Er													

Note:
Asterisk (*) Indicates additional exceedances of review criteria.

Title: Evaluation of Metals Data for the
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Appendix A.7: CLP Data Assessment Checklist
Inorganic Analysis

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INORGANIC REGIONAL DATA ASSESSMENT

Region _____

CASE NO. _____

SITE _____

LABORATORY _____

NO. OF SAMPLES/
MATRIX _____

SDG# _____

REVIEWER (IF NOT ESD) _____

SOW# _____

REVIEWER'S NAME _____

DPO: ACTION _____ FYI _____

COMPLETION DATE _____

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	_____	_____	_____	_____
2. CALIBRATIONS	_____	_____	_____	_____
3. BLANKS	_____	_____	_____	_____
4. ICS	_____	_____	_____	_____
5. LCS	_____	_____	_____	_____
6. DUPLICATE ANALYSIS	_____	_____	_____	_____
7. MATRIX SPIKE	_____	_____	_____	_____
8. MSA	_____	_____	_____	_____
9. SERIAL DILUTION	_____	_____	_____	_____
10. SAMPLE VERIFICATION	_____	_____	_____	_____
11. OTHER QC	_____	_____	_____	_____
12. OVERALL ASSESSMENT	_____	_____	_____	_____

O = Data has no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

ACTION ITEMS: _____

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: _____